Ellenzweig, Moore and Associates, Inc.
Architects/Planners

John Hancock

John Hancock Site Feasibility Study
Boston, Massachusetts

15 March 1985

Ellenzweig, Moore and Associates, Inc.

Architects
Planners

65 Winthrop Street
Cambridge, Massachusetts 02138
(617) 491-5575

Harry Ellenzweig
Leslie Moore

20 March 1985

Mr. Paul Rennie
Second Vice President
Mortgage and Real Estate Department
John Hancock Mutual Life Insurance Company
John Hancock Place
P. O. Box 111
Boston, MA 02117

Re: John Hancock Site Feasibility Study

Dear Paul:

Ellenzweig, Moore and Associates, Inc. (EMA) and Zaldastani Associates, Inc., and our consultants Segal DiSarcina Associates, Inc., Haley and Aldrich, Inc., C. A. Crowley Engineering, Inc, and Perini Corporation are pleased to submit the enclosed Feasibility Study for John Hancock's new parking garage and tenant/retail space.

The study investigates the issues of the proposed tenant space, garage access, and connections to the existing Hancock Place Garage. The feasibility of the project is addressed in terms of design, constructibility and cost.

The recommended design solution has been illustrated in preliminary schematic drawings and has been priced in a construction cost estimate.

This report documents that the project can be feasibly accommodated at the proposed site.

We would be please to continue with the project through construction and look forward to initiating discussions between John Hancock and appropriate review agencies as the next step.

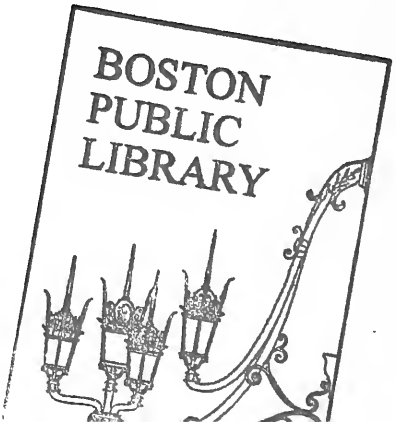
Please call me if you have any questions.

Very truly yours,

ELLENZWEIG, MOORE AND ASSOCIATES, INC.

George T. Tremblay

GTT/dh
6127L
84028



John Hancock
Site Feasibility Study

This Feasibility Study has been prepared by

Architect	Ellenzweig, Moore and Associates, Inc. Architects/Planners 65 Winthrop Street Cambridge, Massachusetts 02138 (617) 491-5575
Structural Engineer	Zaldastani Associates, Inc. 7 Water Street Boston, Massachusetts 02109

and their consultants:

Mechanical Engineer	C. A. Crowley Engineering, Inc. 40-48 North Main Street Middleboro, Massachusetts 02346
Transportation Consultants	Segal DiSarcina Associates, Inc. 286 Summer Street Suite 205 Boston, Massachusetts 02210
Geotechnical Engineers	Haley and Aldrich, Inc. 238 Main Street P. O. Box 60 Cambridge, Massachusetts 02142
Cost Estimator	Perini Corporation 73 Mt. Wayte Avenue Framingham, Massachusetts 01701

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Summary and Conclusion

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Summary and Conclusion

1. The project as definded by John Hancock can feasibly be accomodated on the study site.

2. The recommended solution contains the following uses and areas.

Tenant (over John Hancock owned land)	31,408 SF
Retail/Commercial	15,460 SF
Parking	276,000 SF for 747 cars

3. The recommended solution proposes that the commercial area be placed on lower levels with eight levels of parking above, including the roof. Street access to the garage is recommended from Morgan Street with a Bridge connection at elevation 151 over Clarendon Street to the existing Hancock Place Garage.

4. The building is designed to maximize commercial space along street fronts, and to maximize parking spaces in upper levels. The building image shall be similar to the existing Hancock Place Garage and also exhibit appropriate massing and finishes to reinforce the local street scapes.

5. The Massachusetts Turnpike Authority was contacted regarding the proposed project. From this meeting it is expected that the same restrictions and requirements that were applicable for the existing Hancock Place Garage will be valid for this project.

6. Review and Approval agencies were not contacted, at Hancock's request, to address feasibility or acceptibility of the project. Attempts have been made in the design of the recommended scheme to anticipate agency concerns and requirements through good planning and urban design. The next step would be to initiate discussions with the appropriate agencies.

7. The construction cost for the project is a total of $18,478,000 including all air rights related work, completed commercial tenant areas, and all parking facilities. The costs can be summarized as follows:

$15988/space
$16K/space

o Air Rights Issues	$ 1,722,000
o Commercial Space	$ 4,812,040
o Garage Cost	$11,942,910

The unit costs per floor area are as follows:

o Air Rights Cost/SF	$	5.47/SF
o Commercial Cost/SF ($76.92/SF & tenant fit-up $23.33/SF)	$	100.25/SF
o Garage	$	44.73/SF

8. The following are questions which this report has generated that should be addressed in the next phase of the project.

- o What type of parking, employee or public, does John Hancock wish to provide and what will be desired or permitted by approval agencies.
- o What additional studies, if any, will be required by regulatory agencies.
- o What is the desired or appropriate strategy to provide the 30,000 SF of Tenant area? What is the actual required program?
- o Are there other uses which could be accomodated on the site, such as offices, should parking not be desired.

Introduction

Introduction

Purpose of the Study

The purpose of this study is to prepare a site analysis and site planning studies to test the feasibility for the John Hancock commercial/garage building located on the existing Stanhope Street parking lot and air rights over the Massachusetts Turnpike. The study area is bounded by Clarendon Street, Stanhope Street, Morgan Street and Columbus Avenue in Boston. (See Figures 1 & 2)

Development Objectives

John Hancock's objectives are:

1. To develop approximately 30,000 square feet of tenant space, including loading docks for three small trucks. This space will be owned by the tenant and will be "foot-printed over land", not air rights.

2. To implement the maximum density of commercial/garage development permissible under existing zoning.

3. To develop approximately seven stories of parking that is compatible with the existing Hancock Place Garage.

Design Issues

Issues addressed in this study include:

1. The development of the 30,000 square foot tenant space.

2. The feasibility of connecting proposed garage to the existing Hancock Place Garage.

3. The relationship of the proposed development to the existing buildings on adjacent sites and to the existing Hancock Place Garage.

4. The use of perimeter space for retail development.

5. The urban design issues of appropriate building massing, scale and image along street edges.

6. Anticipation of possible Boston Redevelopment Authority and other review agency issues and requirements.

Planning Schemes

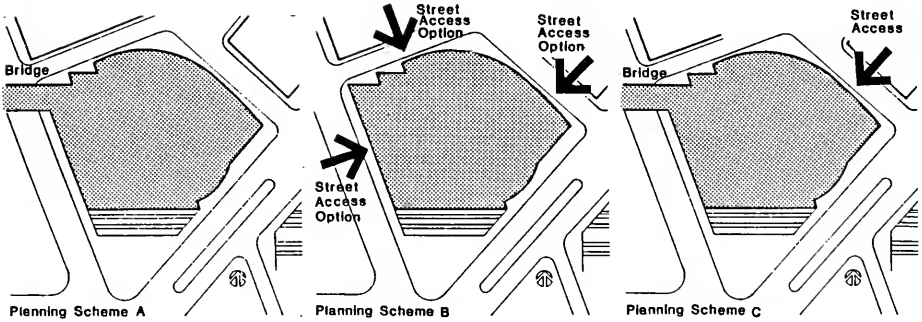
Several alternative planning schemes were studied based on three different options. (See diagrams below) Options studied included:

Scheme A
Completely dependent new garage facility accessed utilizing a traffic bridge to the existing garage.

Scheme B
Independent new facility with separate access from the street and no bridge.

Scheme C
Combination of bridge connected facilities with independent street access provided.

In addition to the options above, various locations for street access to the parking facility were studied to determine their planning implications.



Program Issues

The program issues for this project are a result of parking concerns; tenant, retail and commercial options; and concerns which the approval agencies will generate.

A choice will need to be made regarding the type of parking which will be accommodated in the proposed facility. The parking can be utilized for public use or for Hancock employee use. The selected parking user will have an impact upon access options as well as be subject to approvals by regulatory agencies. Similarly, the approval or disapproval of the proposed bridge over Clarendon Street will influence Hancock's choice of parking type.

The amount and type of retail/commercial space which can be accommodated on the site is an issue which relates directly to parking facility access options and provisions for a tenant program of 30,000 SF.

Commercial/Retail space is best located where street frontage can be maximized and is visible. Access to the parking areas may require street frontage which conflicts with commercial requirements.

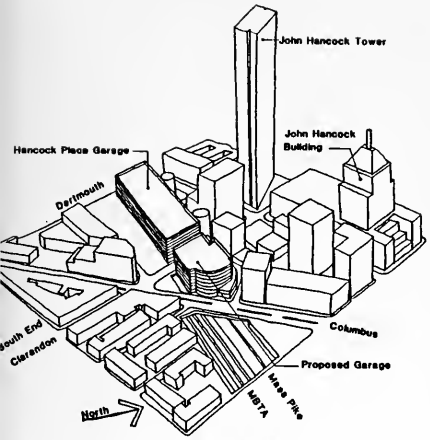
The goal of providing approximately 30,000 SF of tenant area over "real ground"* (non-air rights) is a major determinent of the location of commercial space and parking access.

The review and approval process will raise the issues of appropriate uses, appearance and access for the project. All of these issues will affect the project's final design.

*Note: "Realground" or "Ground" is defined as land owned by John Hancock which is not part of Air Rights Lease.

Architecture and Urban Design

A major objective in the urban design of the project is to provide a unified image between the existing Hancock Place Garage and the proposed facility. It is not necessary to duplicate the existing structure, but certain relationships between elements should be maintained.



Site Perspective

Efforts should be made to enhance the streetscape along Columbus Avenue. The north side of Columbus provides fronts for typically seven story brick office buildings, where on the south there are four story brick row-houses typical of the South End.

Stanhope Street has several 2 story brick structures along its front and and an eight story brick retail and office building at the corner of Clarendon Street. The design of the facility along Stanhope should encourage the use of the streetedge. It could be anticipated that the area to the north will change with future development increasing the importance of Stanhope Street front.

Project Feasibility

This study will review the proposed project feasibility in terms of design, constructibility and cost.

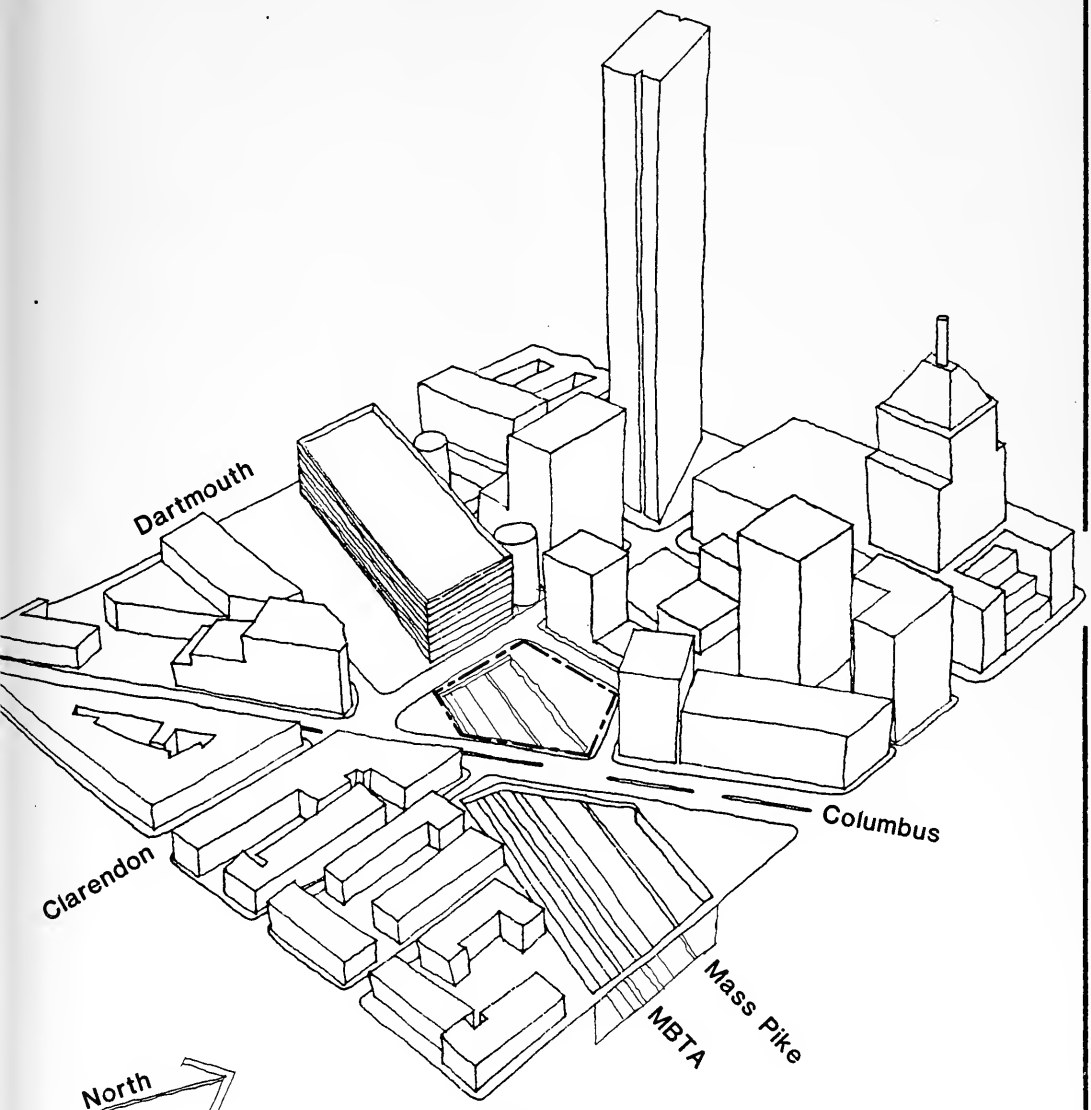
These items have been tested through the generation of a recommended design solution which meets established goals and addresses anticipated issues that review and approval agencies will raise.

This design solution has then been priced to arrive at an estimated construction cost.

The costs have been summarized in terms of cost associated with air rights, with commercial space and with garage area.

A listing of anticipated public agency approvals is provided in the Appendix. The project Team met with the Massachusetts Turnpike Authority to discuss constructibility and access concerns for the air-rights portion of the project which is addressed in the Project Description.

The Team did not, at John Hancock's request, entertain discussions with any other agencies to address the feasibility or acceptability of this project. This would be the next step in this development project if John Hancock elects to proceed.



Site Perspective

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Figure 1

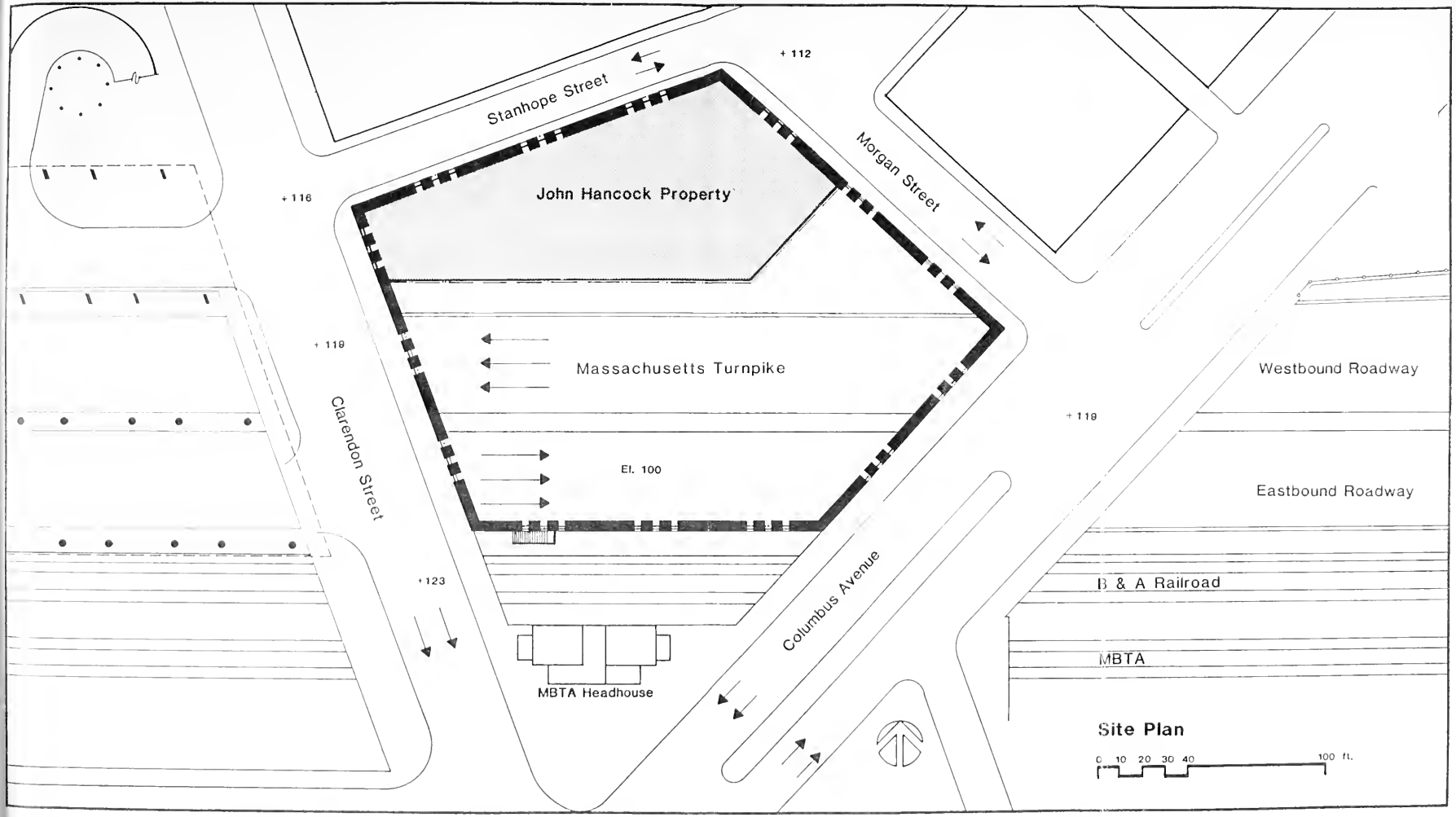

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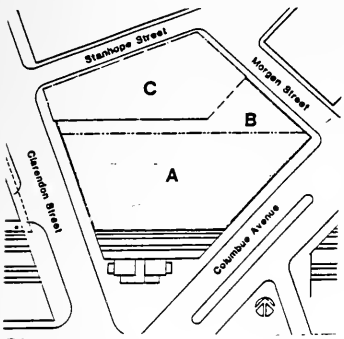
Figure 2

Project Description

Project Description

Site



Site Areas

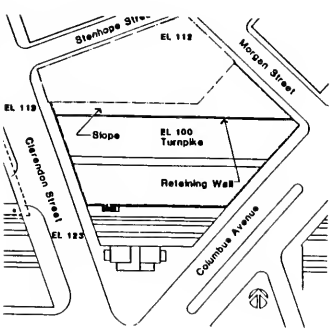
The proposed John Hancock Garage site is bounded by Clarendon Street, Stanhope Street, Morgan Street, and Columbus Avenue and the B & A Railroad track in Boston.

The area of this footprint is approximately 42,485 SF divided as follows:

A. Air-Rights (MTA-Travel Lanes & Railroad.)	26,338 SF
B. MTA banked area	4,749 SF
C. Hancock*	11,398 SF

*assumed ownership of remainder of parcel.

The use of both air rights and "ground" are proposed to be combined constituting the site for the facility. Based upon a meeting with the Massachusetts Turnpike Authority (MTA) it is our understanding an Air-Rights Lease similar to that of the existing Hancock Place Garage could be negotiated between John Hancock and MTA. (see notes in Appendix).



The amount of "ground" area available is important to this project for parking access and to provide for the tenant requirement for area over "real ground". The MTA can make their portion of "ground" (approx. 4750 SF) available as part of the Air-Rights Lease Agreement. This land could only become available for purchase if the MTA first designates it as excess and secondly if it is sold through public auction.

The existing street and sidewalk grade elevations vary from a low point of approximately 112 ft. at the intersection of Stanhope and Morgan Street to a high point of 123 ft. at the southerly end of Clarendon Street. The ambient Mass Turnpike elevation in this location is approximately 100 ft. There is a retaining wall located between the MTA travel lanes and the sloping land between the existing parking lot along Stanhope Street.

Traffic Analysis

Based upon initial traffic observations and analysis, the local street intersections should be capable of handling the additional load generated by the facility. As mentioned in the Traffic Engineers Report in the appendix, the affects of several proposed developments in the area could alter existing conditions and the determination whether or not a state Environmental Impact Report (EIR) is required should be addressed with appropriate agencies.

For traffic access and egress, it would be desirable to have the new garage access ramp connect into Morgan Street which connects into Columbus Avenue from which vehicles have a maximum flexibility to disperse.

The capacity of the existing garage to service the proposed parking facility was investigated. The demand analysis of the existing two drum ramps and ticket booth system, illustrates it is not necessary to provide additional access to the new facility if an adequate connection can be made to bridge the two facilities. However, it is desirable to provide a simple ramp with two ticket booths on the new parcel for convenience and flexibility.

Connection to Existing Hancock Garage

The project location affords possible direct connections with the existing Hancock Place Garage. The present John Hancock garage has a 14.25-foot height to the second floor and 10-foot floor-to-floor heights above. The 10-foot floor-to floor typical height provides adequate clearance for vehicles and structure.

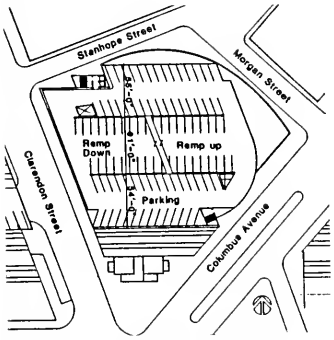
The proposed facility will utilize the same floor-to-floor heights as the existing garage. The lower levels will be organized to provide maximum clearance for commercial areas on the first floor and to allow clearance for 2 or 3 levels of commercial space over the "real ground" footprint.

Connection to the existing garage is proposed to be accomplished via a traffic bridge. In order to reduce the bridge's impact on the street its profile is minimized by making the structure uncovered and two traffic lanes wide. The visual impact of the bridge on the street is further reduced by locating the bridge on the third floor levels of the garages thus creating an approximate thirty two feet street clearance. (See Figure 14)

Minor differences in floor elevations between proposed and existing structures result from maximizing commercial area and vertical clearance. These differences can be tolerated by a slight slope (3%) in the connecting bridge roadway.

Building Description

The proposed facility is organized to maximize the commercial area at the street level. The first floor contains areas at two elevations to allow grade access from the adjacent sidewalks. The first floor area over air rights is at elevation 119 ft. to allow clearance over the turnpike. The first floor area over "real ground" is at elevation 116 ft. to allow pedestrian access from the corner of Clarendon and Stanhope Streets, service access at Stanhope Street and clearance for addition levels of tenant space at elevations 104 ft. and 128 ft.



Typical Garage Floor

The upper 7 levels plus roof contain three bays of commuter parking. Level 2 contains one bay of ramp and one parking bay. The center bay of parking is a sloping two-way traffic access ramp. Traffic movements is one way in the clockwise direction at the perimeter bays.

This configuration affords the maximum number of parkings spaces per gross area for this irregular site. The level perimeter bays allow the garage to present a similar appearance as the existing garage.

Studies were done with a ramping system similar to the Hancock Place Garage. These schemes resulted in approximately 60 cars per floor with increased area compared to the approximately 96 per floor of the recommended scheme.

The economy of the proposed scheme is due to cutting the floor area to only that required for 3 double loaded bays including parking on the ramps in the upper levels. Lower levels utilize the full area of the irregular site for commercial space wth maximum street frontage.

Access to the parking is proposed to be from grade level at Morgan Street, ramping and continuing upwared to all levels. The bridge connection to the existing Hancock Place Garage is proposed at level 4 (3rd parking level) to minimize its appearance from the street level.

Stairways and elevators are located at important perimeter intersections and are visible for safety and security. Utility shafts and rooms are located, where possible, in areas unusable for parking.

Area Summary

The following is an area summary of the proposed design scheme.

	GSF	Number of/ Parking Spaces
BASEMENT (EL. 104)		
Tenant	12,000	
Subtotal	12,000	
1st FLOOR (EL. 116 & 119)		
Tenant	9,488	
Retail	15,460	
Parking/Access	6,980	
Subtotal	31,928	

	GSF	Number of/ Parking Spaces
2nd FLOOR (EL. 131)		
Tenant	9,920	
Parking	23,202	
Subtotal	33,122	
SEVEN TYPICAL GARAGE FLOORS (EL. 141-201)		
Parking per level	32,597	96/level
Subtotal floors 3-8	244,478	747
BRIDGE (El. 151 - 3rd floor)	1,340	
Subtotal floors 3-8 plus bridge	245,818	747
TOTAL	322,868 SF	747 Cars

3 27 ¢/space

Tenant Space

A major component to this project is the approximate 30,000 SF of area required for an anticipated tenant. This area is desired to be located over non-air rights property. At present John Hancock has only approximately 11,400 GSF in footprint available to develop this space. There are basically three strategies for providing the tenant with approximately 30,000 SF. They are as follows:

Strategy A

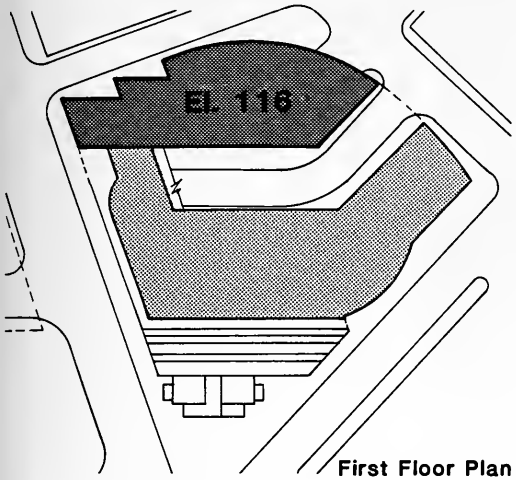
John Hancock could build three levels of Tenant space at the following elevations; First-104; Second - 116 and Third - 131. See Fig. 3.

Strategy B

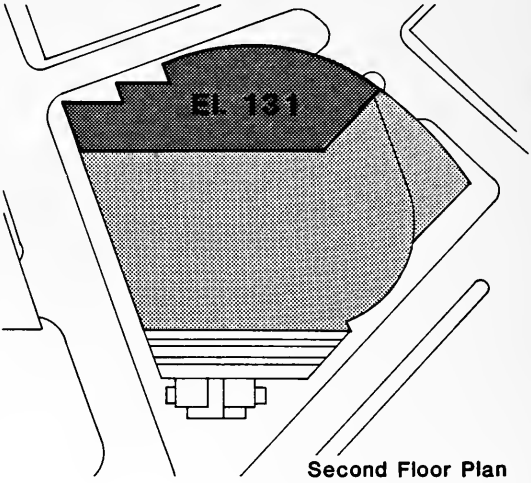
John Hancock could secure additional "real ground"from the MTA and build two levels of Tenant space. See Fig. 4.

Strategy C

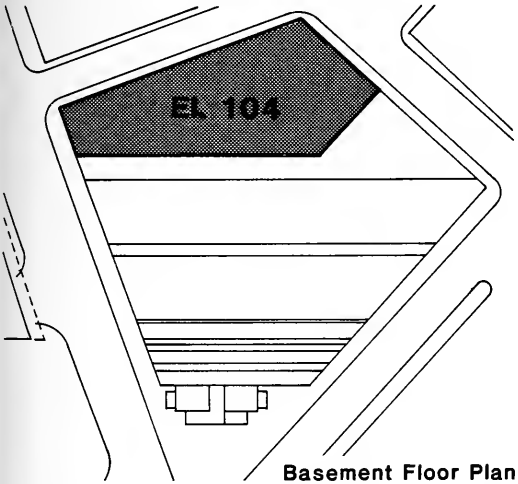
John Hancock could relax the requirement for "real ground" and utilize first and second floor "real ground" areas in addition to "air-rights" area. See Fig. 5.



First Floor Plan



Second Floor Plan



Basement Floor Plan

LEGEND
Tenant Space
Other Built Space

Tenant Space
Strategy A

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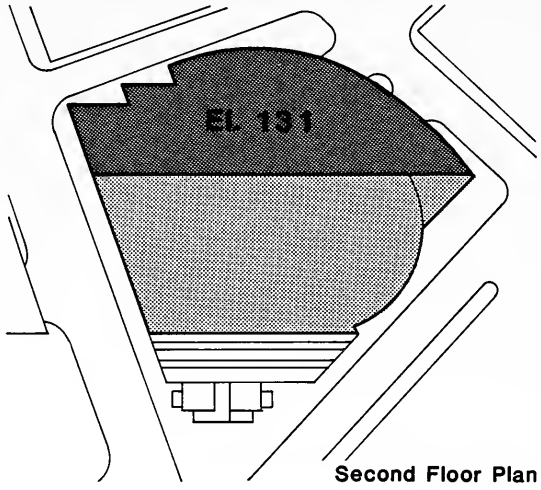
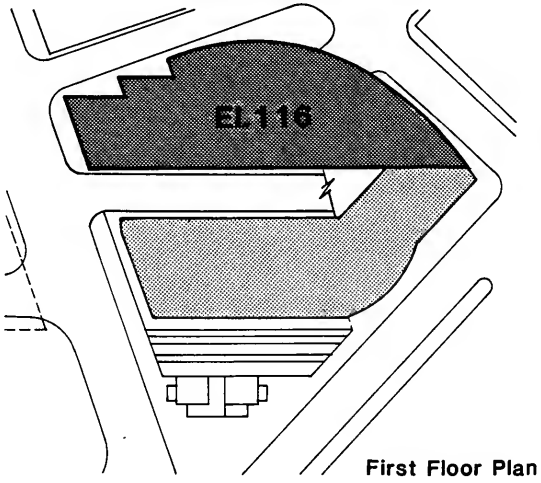
Figure 3



Second Floor Plan



First Floor Plan

LEGEND
Tenant Space
Other Built Space

Tenant Space
Strategy B

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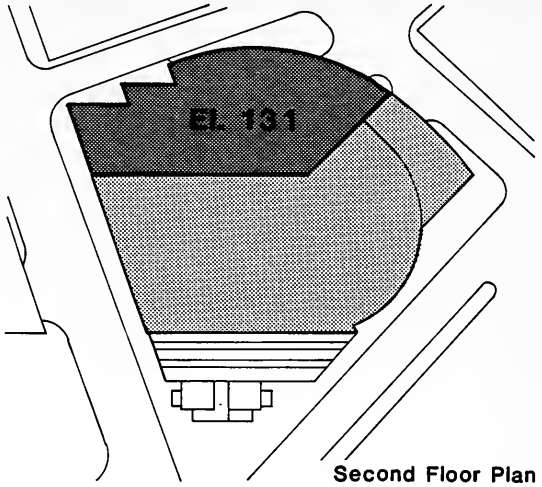
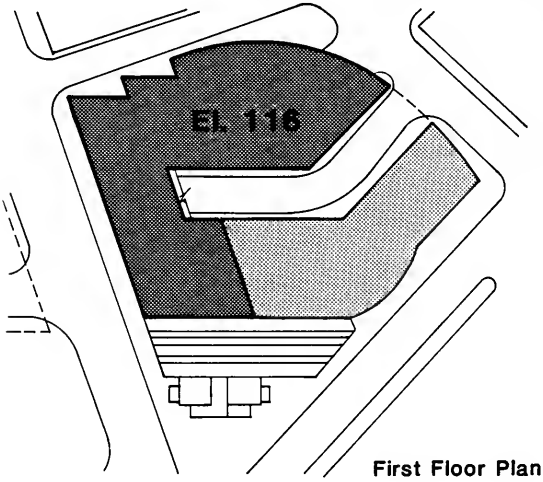
Figure 4



Second Floor Plan



First Floor Plan

LEGEND
Tenant Space
Other Built Space

Tenant Space
Strategy C

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Figure 5

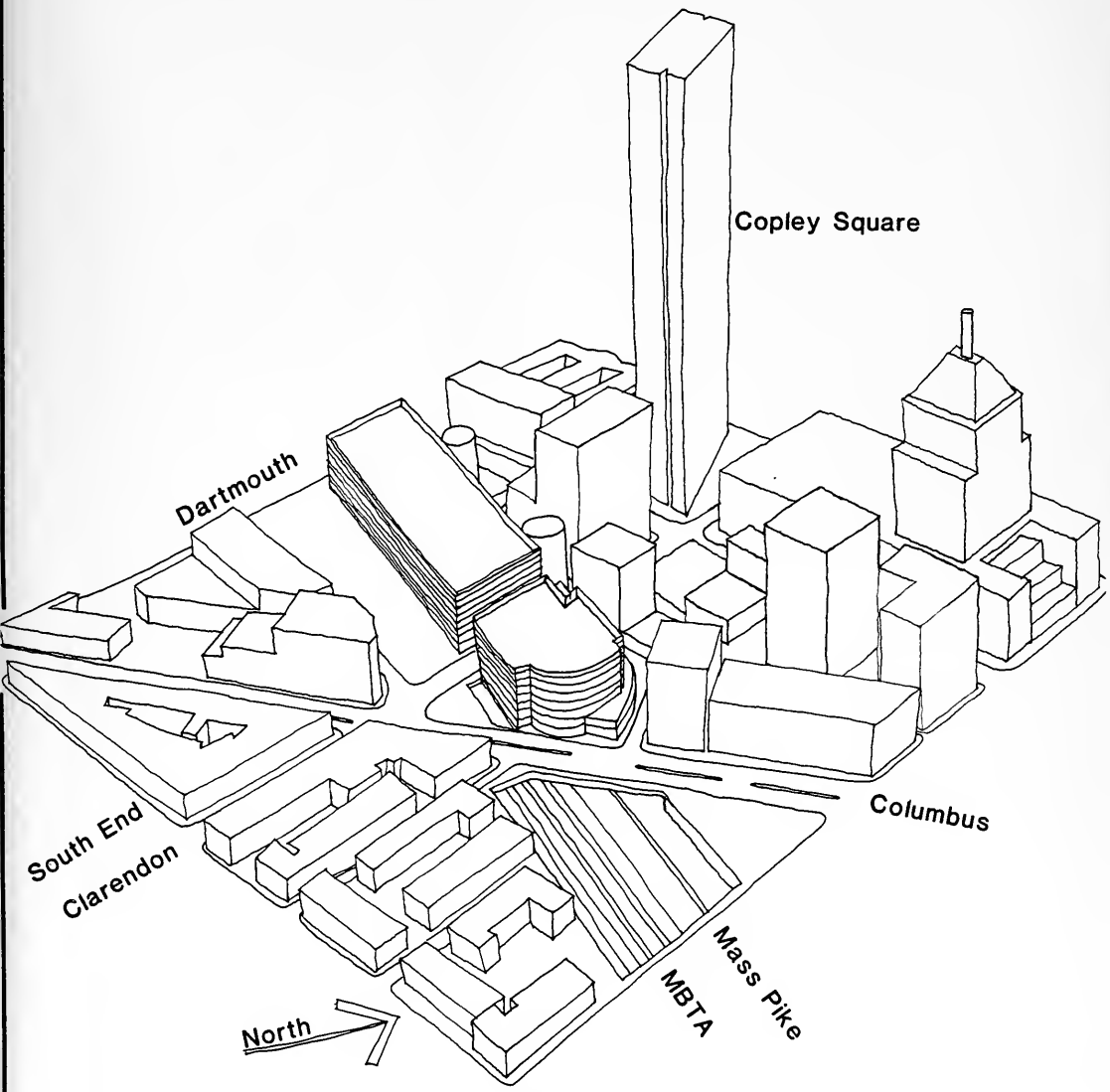
The proposed scheme illustrates Strategy A since this meets the original program requirement and has some structural benefits discussed in the foundation report.

Building Image

The proposed building is organized into an expression of the different uses it contains. Lower commercial levels would contain more glass area and openings to encourage pedestrian use and to reinforce the streetscape. Upper parking levels would be designed to reflect a similar appearance to the existing parking structure.

The project is massed on this irregular site to minimize the floor area constructed and maximize the usable area as well as to present a reduction in scale at street edges.

It is anticipated that the exterior will be constructed of pre-cast concrete similar to the existing garage with commercial areas exhibiting store front and individual lite window systems.



Site Perspective

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Figure 6

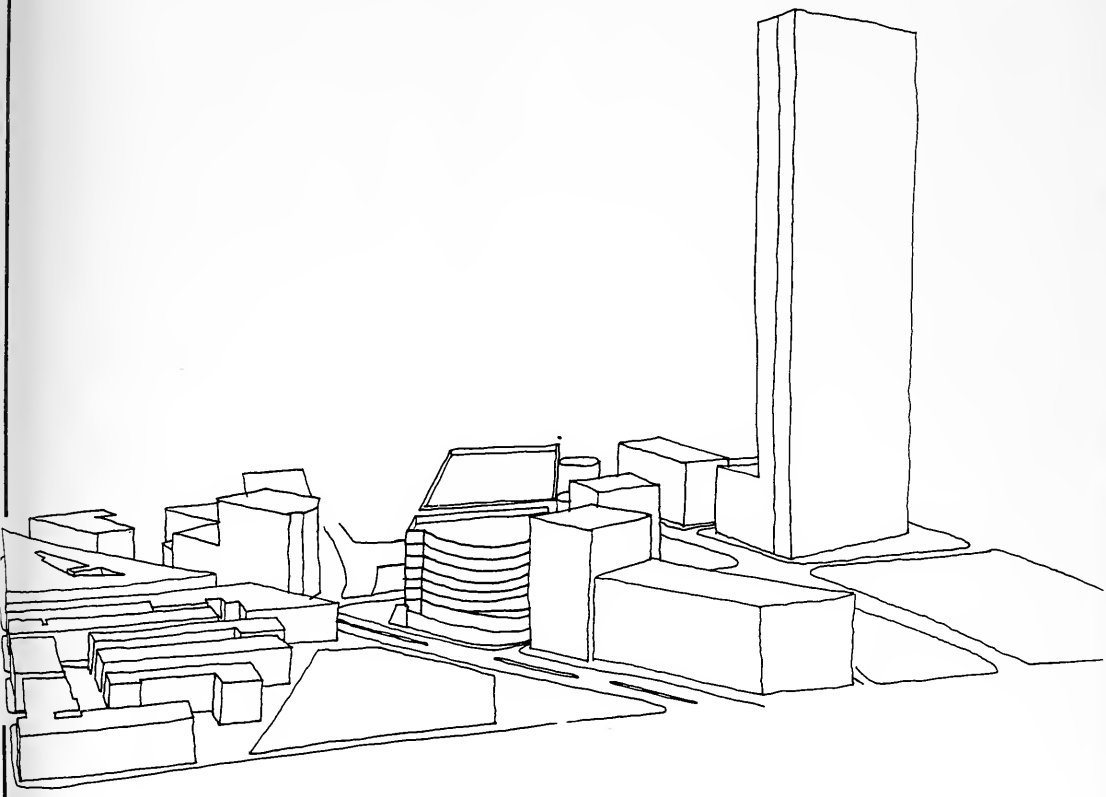

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Figure 7

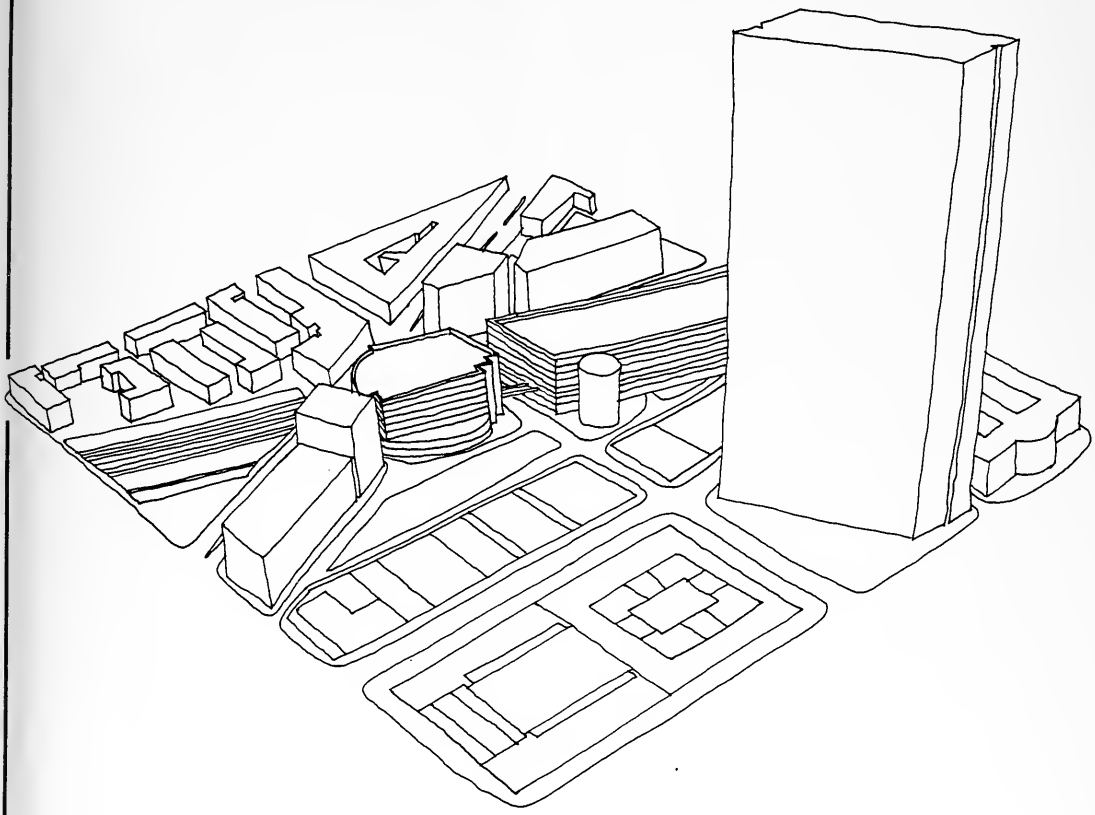

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Figure 8

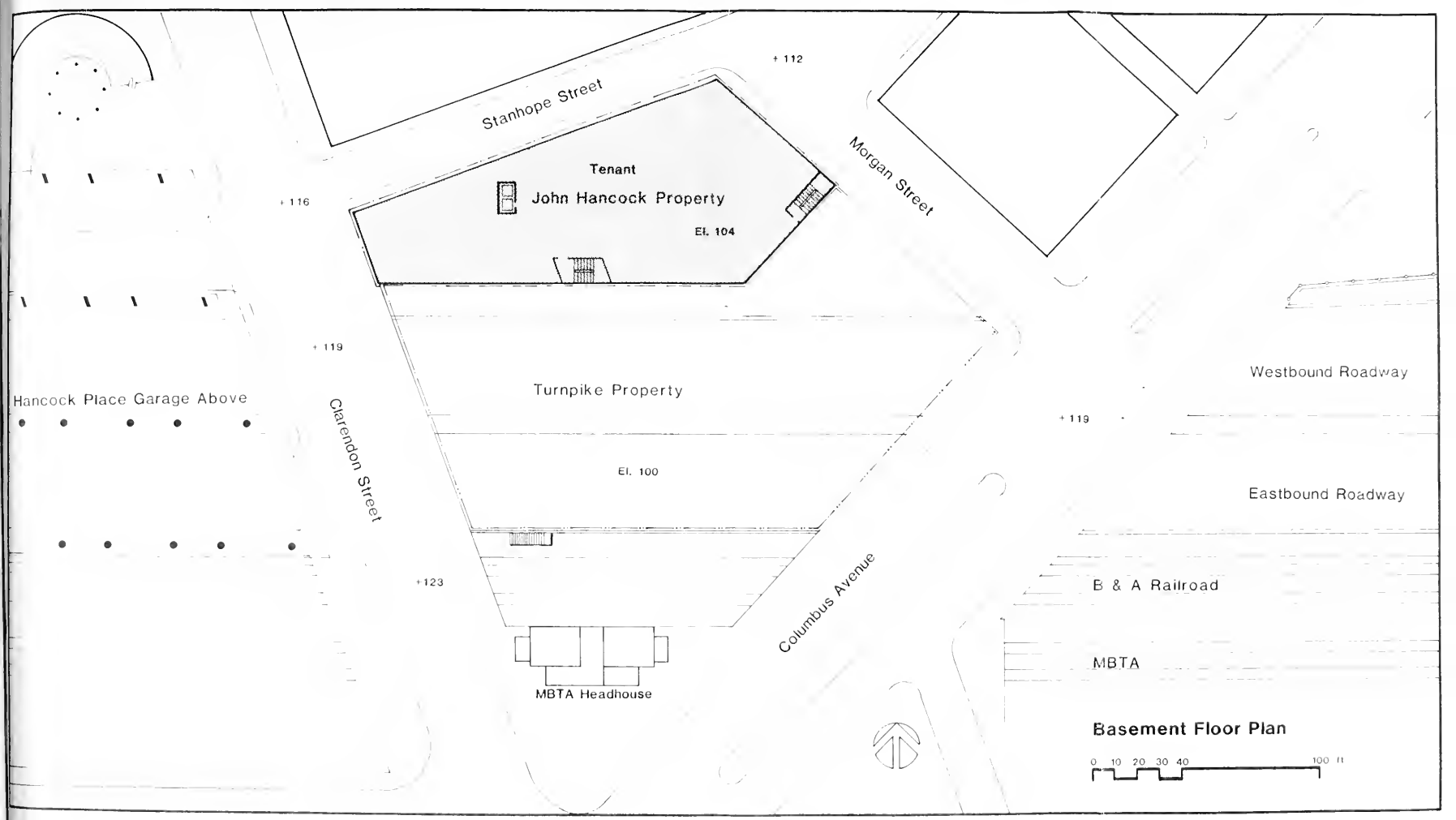

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Figure 9

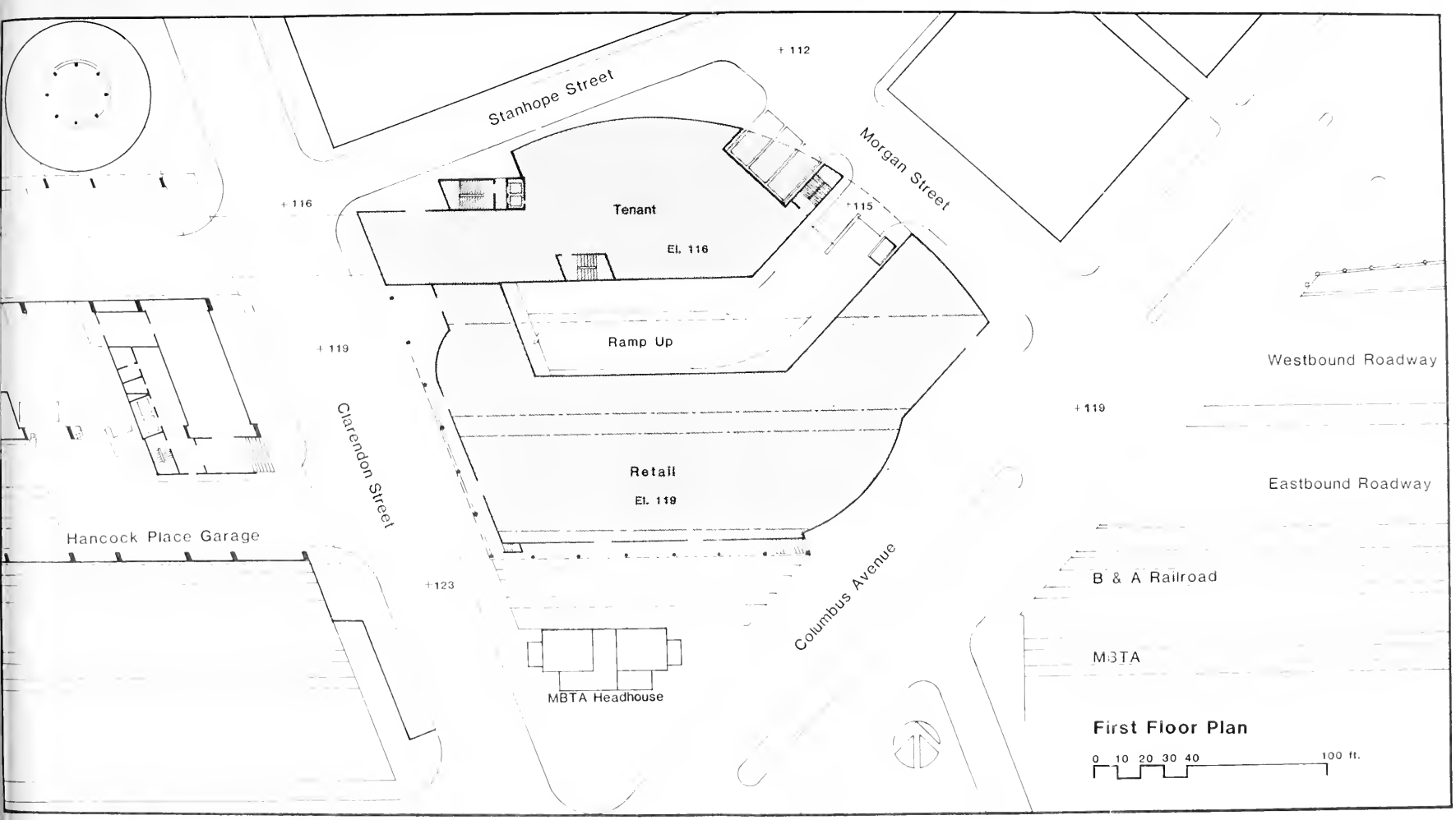

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Figure 10

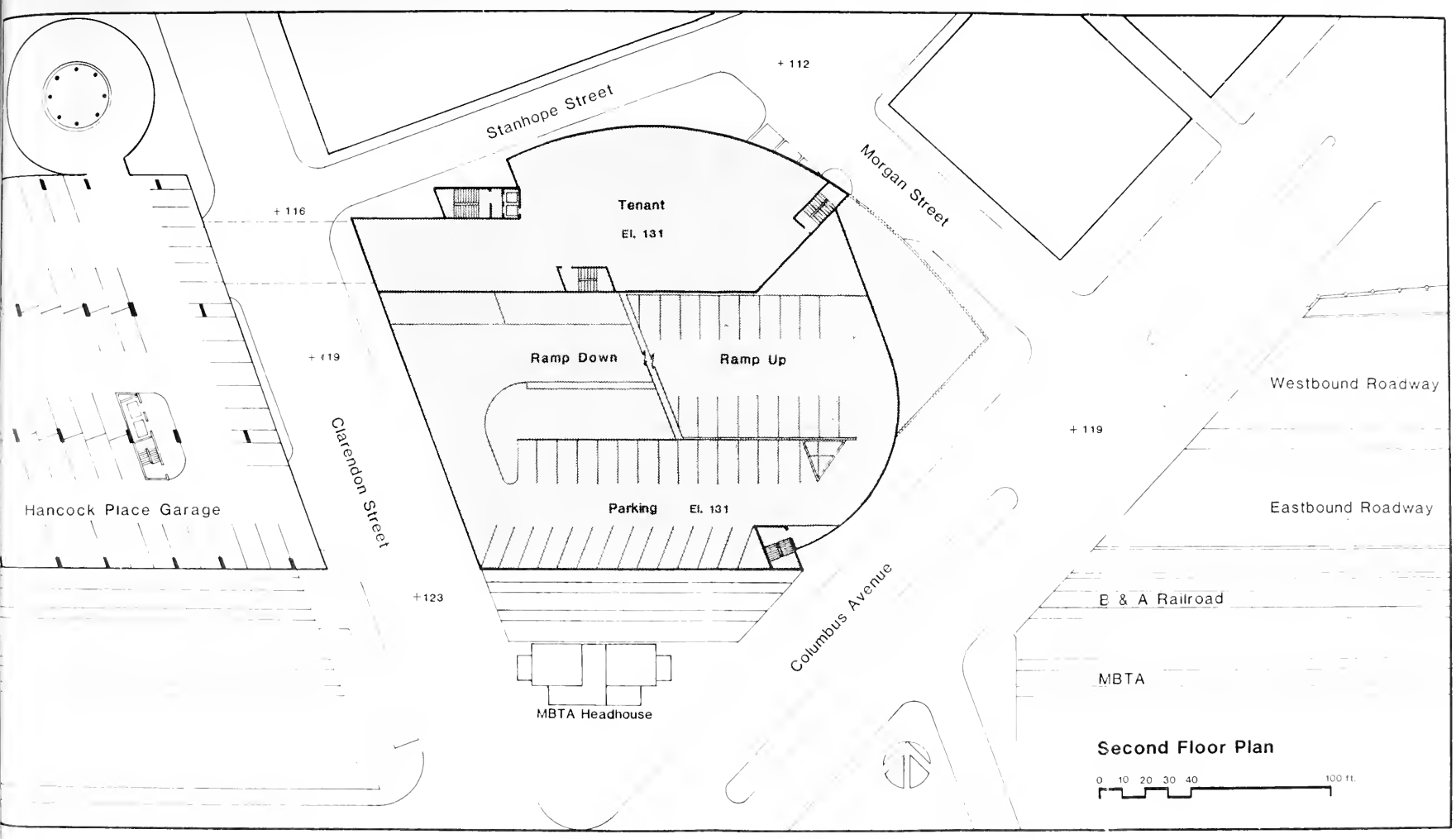

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Figure 11

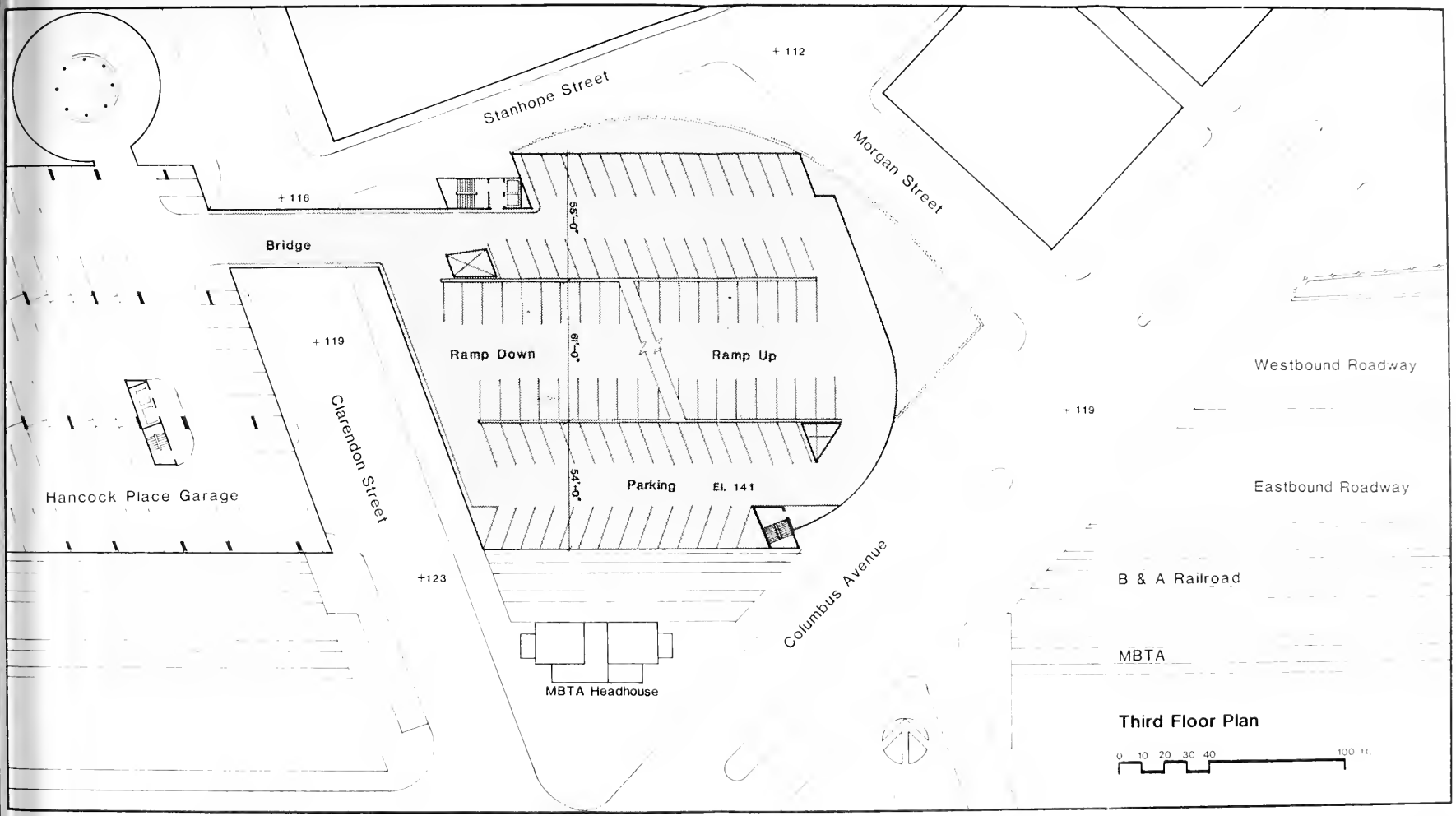

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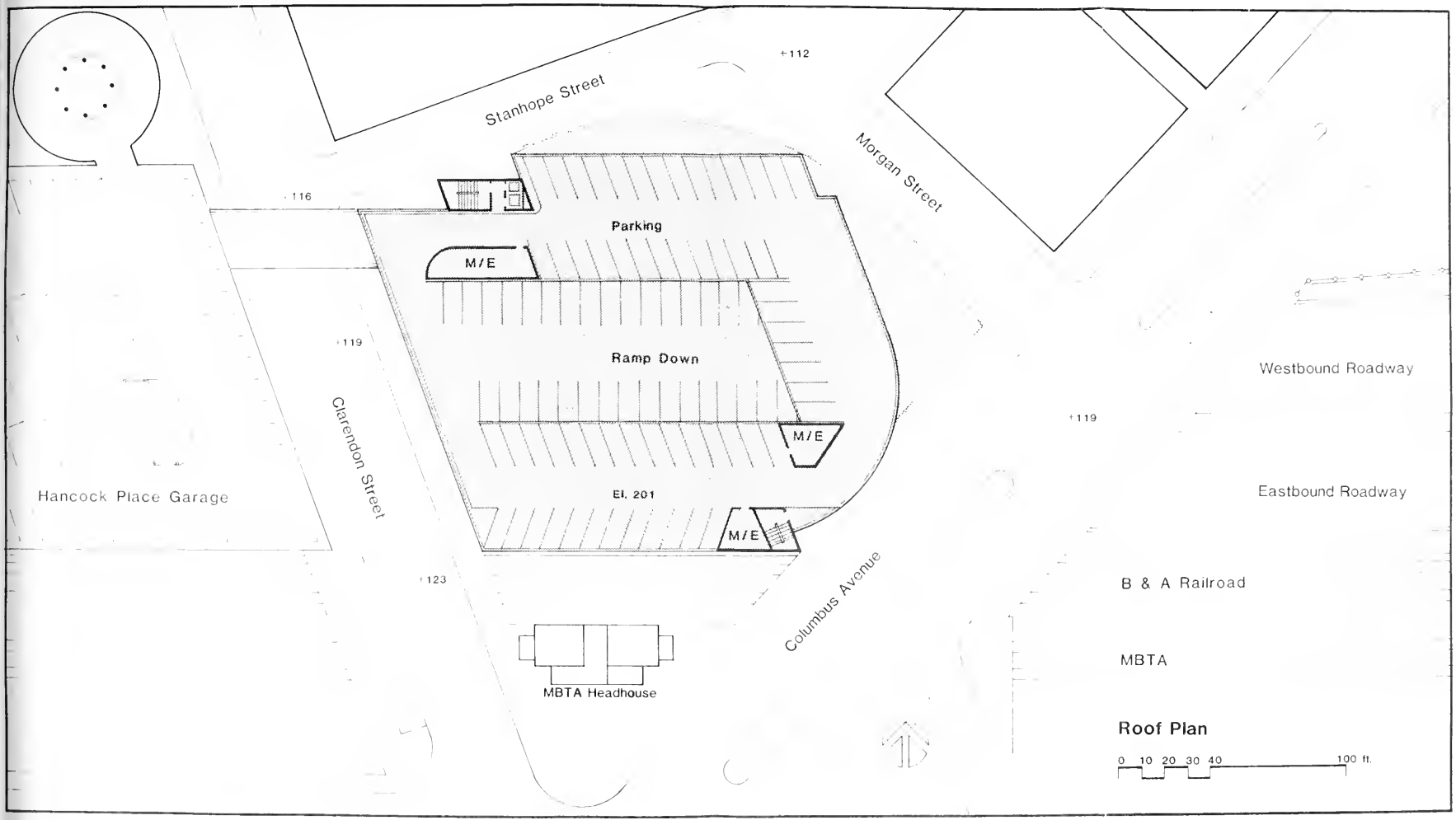
Figure 12



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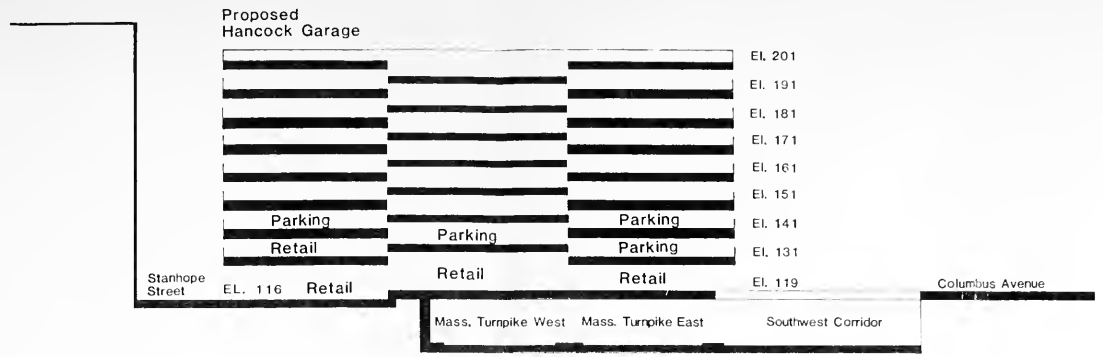
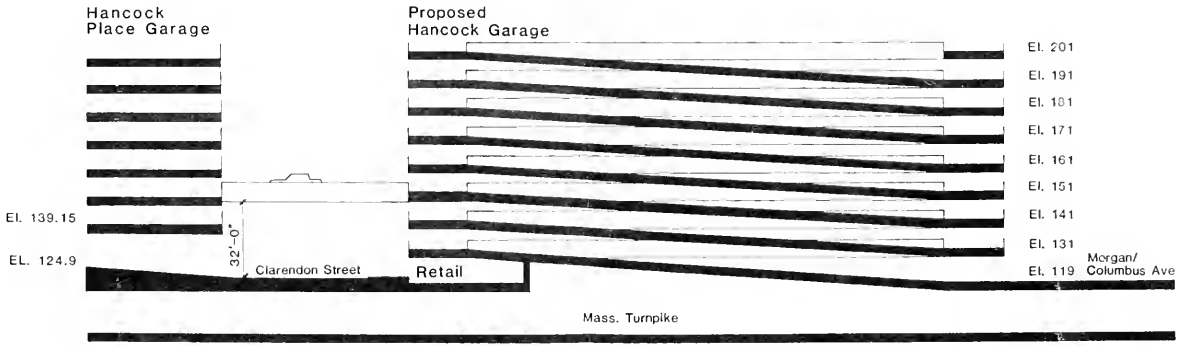
Boston, Massachusetts

Figure 13



Section Looking East



Section Looking North

0 10 20 40 80 ft.

Ellenzweig, Moore and Associates, Inc.
Architects/Planners
Zaldastani Associates, Inc.
Structural Engineers

Segal DiSarcina Associates, Inc.
Transportation Consultants
Haley & Aldrich, Inc.
Geotechnical Engineers
C. A. Crowley Engineering, Inc.
Mechanical Engineers

John Hancock Site Feasibility Study
Boston, Massachusetts

Figure 14

Structural/Engineering/ Construction Planning

Site

The site of the proposed new John Hancock air rights facility has many of the characteristics of the site of the existing Hancock Place Garage.

The southerly two-thirds of the site extends over the Massachusetts Turnpike, east and west roadways while the northerly one-third of the facility is founded on filled land north of the Turnpike. To the east and west, the site is bounded by bridges crossing the Turnpike.

Access to the site will be available to the north, east and west but similarly not from the south where the tracks of Boston and Albany Railroad occur.

The Turnpike runs at an elevation below the highest anticipated groundwater level and therefore is supported on a "boat" slab which is three feet thick and prevents flooding of the Turnpike should the groundwater rise, and floating of the boat structure. Below the roadway slab a storm water drain carries precipitation falling on the Turnpike to a pumping station at Fort Point Channel. On the north side of the roadway a retaining wall supports ground at a higher elevation.

At this site the roadways reach a low point in their profile. This characteristic has caused the designers of the Turnpike to introduce back-up drainage systems adjacent to the low-point drains in order to provide added safety against flooding of the roadway should blockage of the main drains occur. The provision of this back-up had required an 18" diameter drain line to be located down the median of the Turnpike. With the extended covering and protection of the roadway which would occur with the construction of this project, it is possible that the Turnpike Authority would permit the elimination of this back-up system.

Adjacent to the northerly track of the B & A Railroad where the southerly support for the project would be required, a signal conduit occurs. This can be relocated as occurred with the Hancock Place Garage.

Adjacent to the Columbus Avenue Bridge a utility bridge occurs which supports gas, water and electrical utilities. Arrangement for the incorporation, support or relocation of these elements will be required.

As described more fully in the Appendix in a report by Haley and Aldrich, geotechnical consultants, subsurface exploration shows the site to be underlain by fill, soft organic silt, soft to medium soft clay, and glacial till above rock which is about 100 to 120 feet below the level of the Turnpike. The nature of the soil and the magnitude of the loads originating from the building requires a foundation supported on deep piles penetrating to the till and rock. This condition is the same as that found at the adjacent Hancock Place Garage.

Foundation Installation

To the north of Turnpike, excavation for the basement will be required. The removal of up to 12 feet of fill will enable the basement slab at Elevation 104 to be constructed as a slab on grade. This will be above the projected maximum groundwater level. Support of the structure in this area will be most economically installed as precast prestressed concrete piles 14" or 16" square.

At the median of the Turnpike, the mat must first be penetrated by coring prior to the installation of steel H piles. H piles represent the most suitable pile at this location because of their relative ease of handling, splicing and their speed of installation in the restricted condition which exists. The exact method of construction will depend on the position of the Turnpike Authority with regard to the removal of the storm water drainage back-up system discussed previously.

The Turnpike Authority anticipates that similar controls to those imposed in the construction of the Hancock Place Garage will be imposed on operations in the median. Basically, this restricted access to the median during commuter rush-hours from Monday through Friday. All three lanes of the Turnpike must operate in the easterly direction before 9:30 AM and all westbound lanes must be operating after 3:30 PM. Also, no construction can occur directly above operating traffic.
To the south of the site between the Turnpike and the Railroad, sufficient space occurs for the installation of piles and a column to support the structure above. The controlling dimensions at this column line is the provision of 8'6" clear from the center line of the northerly track to the face of the column. At this location steel H piles represent the most appropriate method for reasons of handling and speed of erection. The installation of this pile type also causes little displacement of the stratum through which it is driven and therefore presents the least potential disruption to the Turnpike mat and adjacent bridge structures.

Building Structure

The building developed in the feasibility study may be characterized as an open parking structure with commercial facilities at the street level.

Considering the height of the building, the size of the site, its accessibility on the north, east and west and its occupancy, the building may be constructed of Type 2C construction in accordance with the Massachusetts State Building Code. This classification requires that the structure be noncombustible but requires no fire rating. Sprinklers will be required throughout the facility.

Because of the requirements of construction method, the shape and characteristics of the site and its building and for reasons of economy, it is anticipated that a structural steel frame will provide the most appropriate method of structuring the facility. Figures 15 through 19 indicate a steel frame supporting cast-in-place reinforced concrete one-way slabs which act compositely with the floor beams. Loads from the floor beams are carried by steel girders to the columns. Columns, girders and floor beams act in combination to resist lateral forces due to seismic and wind loading.

The exterior precast panels are supported directly by the columns and span between them.

At the entry to the garage and certain other locations above the Turnpike transfer girders must be introduced to carry column loads from the structure above to the available support locations below.

At the Turnpike level and at the first floor, fireproofing of the structure will be required. At the Turnpike level this will be provided by encasing the columns in concrete and by applying a spray-on fireproofing with a cement based finish to floor beams and girders. At the first level, columns will be concrete encased where exposed to the exterior and will receive sprayed-on fireproofing along with the beams and girders within the enclosed building.

It is to be noted that work directly above and adjacent to the Turnpike must be undertaken within restrictions imposed by the Turnpike Authority. It is therefore proposed that first floor structural slabs over the roadways be constructed using precast slabs designed to receive a concrete topping in order to reduce the impact of the slab construction on Turnpike operations.

Other structural systems such as precast concrete as used in the original garage project were considered for the building outline in this feasibility study. The irregular geometry combined with the change in Building Code requirements with regard to construction classification and the introduction of seismic design requirements makes precast concrete a less suitable method than that proposed.

Protection of the cast-in-place concrete from the adverse effects of de-icing salts in the garage is proposed.

The bridge at the third level linking the proposed facility with the existing Hancock Place Garage is located between the northerly elements of the structure so that a foundation and support for it may be provided for independent of the Turnpike considerations. Its structural form will be consistent with the structure of the new facility.

HVAC System

The proposed new air rights parking garage will require D.E.Q.E. approval as well as approval from the MTA, local state and federal agencies of the Turnpike ventilation. This will require forced mechanical ventilation to dilute and remove hazardous exhaust gases from the Turnpike traffic.

Provisions will be made to supply a central heating and air conditioning system for the tenant and retail areas. Heating and ventilation is proposed for the elevator lobby and egress stairs at each level.

The garage design will require adequate open areas on all exposures to eliminate the necessity of ventilation on the parking levels.

Plumbing and Fire Protection

A drainage system will be required to serve the upper or roof parking level as well as the covered levels of the facility.

The tenant/retail space on the first two levels will have provisions for sanitary drainage to accommodate toilets and what other facilities might be provided within the space.

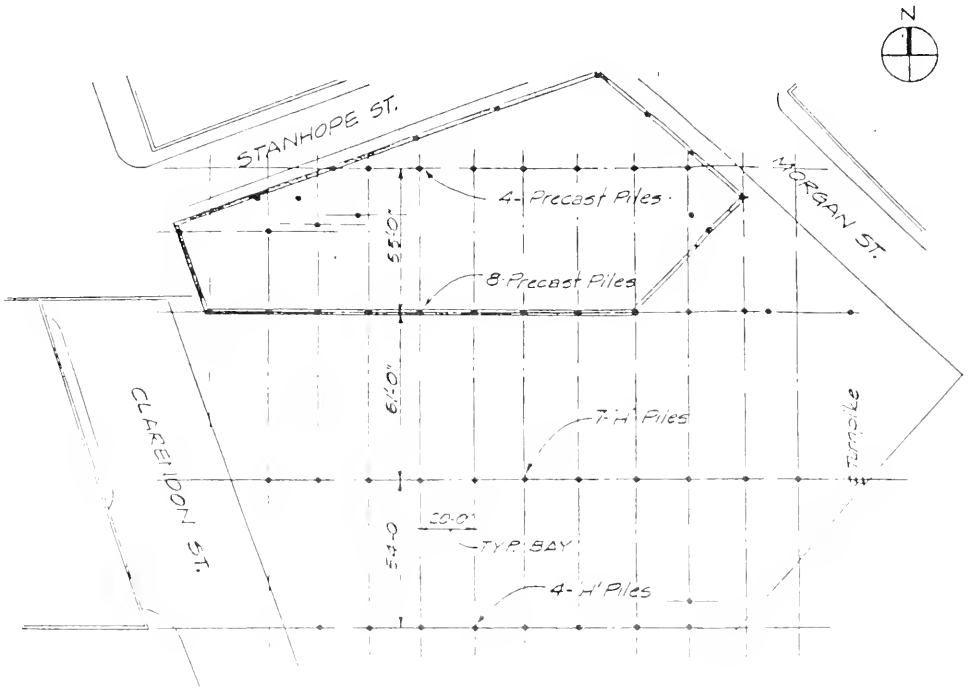
A means for washing down the garage levels should be provided within the facility. This would generally consist of one or two risers with valves on each level that will allow connections of a hose for washing down the facility.

Since the garage exceeds 70 feet in height, the entire building will require an automatic fire suppression system.

Electrical System

An emergency power system is required and will be supplied by diesel generator via an automatic transfer switch which is activated upon loss of power.

The proposed garage lighting system would consist of surface mounted fluorescent fixtures, powered from panels on each level. Fluorescent high output lighting would be provided to match the existing turnpike lighting scheme.



Total No. of 34 Ton capacity precast piles - North of Turnpike ..... Approx. 165

Total No. of 145 Ton capacity Steel "H" Piles associated with Turnpike ..... Approx. 105

BASEMENT & FOUNDATION PLAN

I. Loads:
   1. Wind and seismic loads in accordance with the requirement of Massachusetts State Building Code.
   2. Roof: Basic Snow..... 30 psf
      Parking..... 50 psf
      Floor: Parking..... 50 psf
      Lobby..... 100 psf
      Retail and offices..... 100 psf

II. Foundations:
   1. All footing north of Turnpike shall be supported on 134 ton capacity pre-cast piles. Footings south of Turnpike and associated with Turnpike shall be supported on 145 ton capacity HP 14 X 117 steel "H" piles.
   2. Provide 6" of well compacted, clean, coarse sand and gravel and moisture barrier under all slabs on grade.

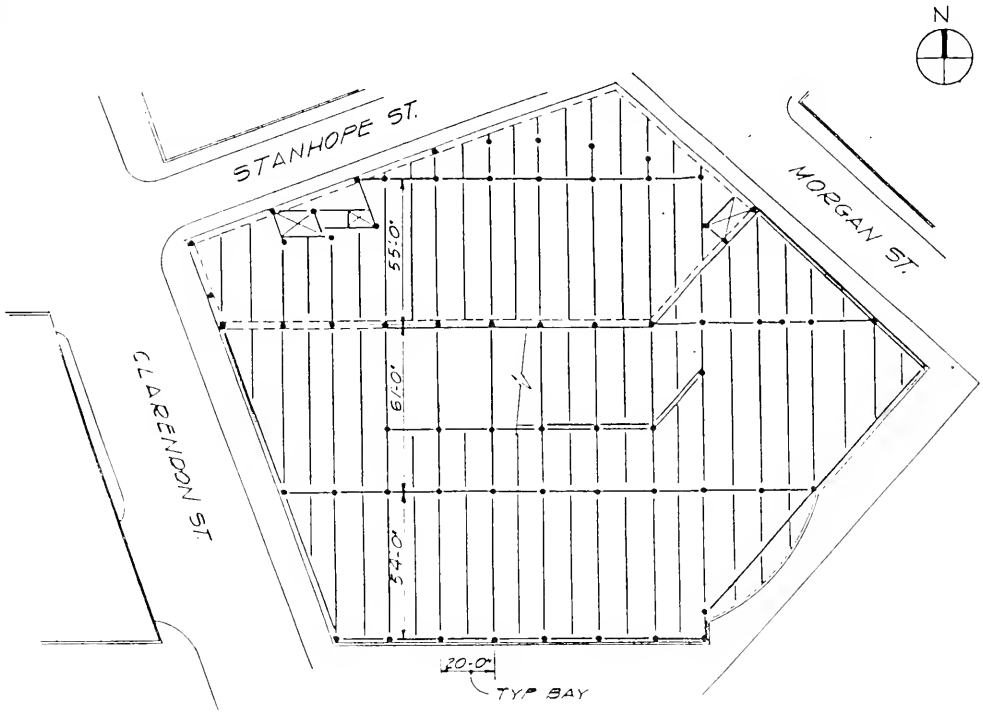
III. Concrete:

	Strength @ 28 days
1. Concrete Parking Deck	5000 psi air-entrained
All other	4000 psi

   2. Reinforcing bars shall conform to ASTM 615, Grade 60. Specifications for "Deformed Billet steel bars for concrete reinforcement with 60,000 psi minimum yield point.

IV. Structural Steel:
   1. Steel shall conform to ASTM Standard Specifications A-36, "steel for bridges and buildings" as amended to date.

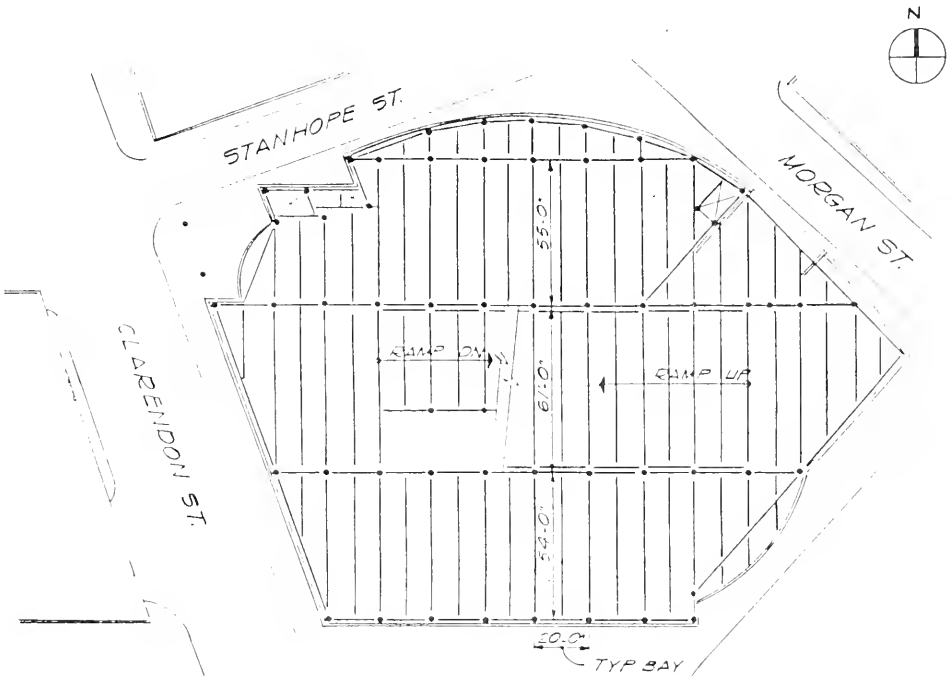
Figure 15



5" Conc. Slab - Reinf 2.33 #/sq ft
Struct. Steel beams & girders - 11.2 #/sq ft
Struct Steel Columns - 2.00 p.s.f.
Shear Studs 3/4"Ø x 3 1/2" long - 1 stud per one lb of Struct Steel.

FIRST FLOOR FRAMING PLAN

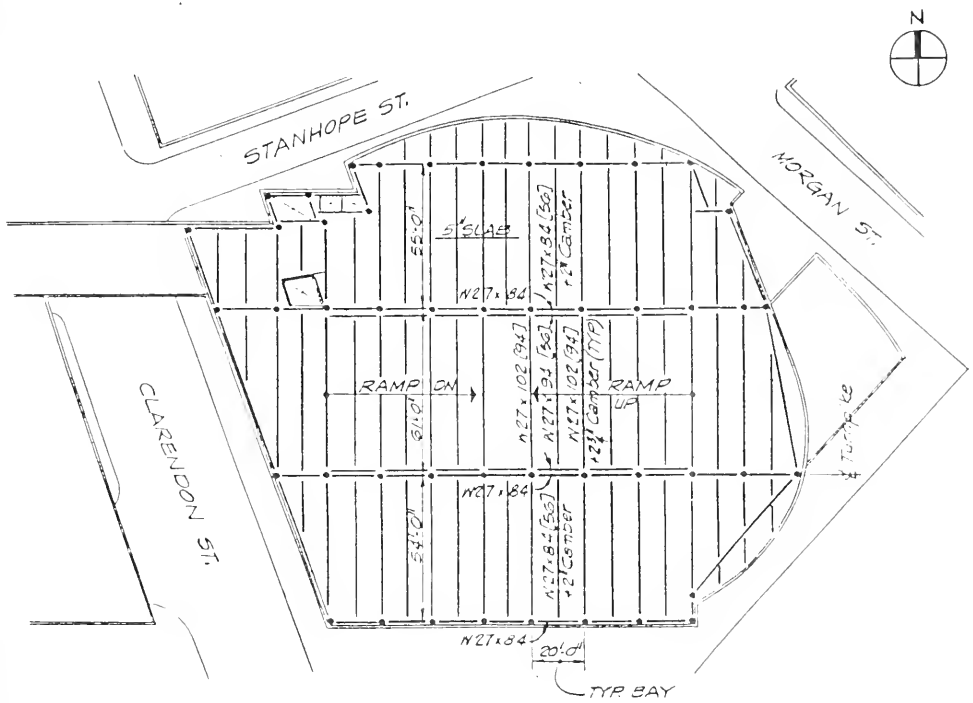
Figure 16



5" Conc. Slab - Reinf. 2.33 #/sq.ft.
Struct. Steel beams & girders - 11.2 #/sq ft.
Struct. Steel Columns - 2.00 p.s.f.
Shear Studs 3/4" ø x 3½" long - 1 stud per one lb of Struct. Steel.

SECOND FLOOR FRAMING PLAN

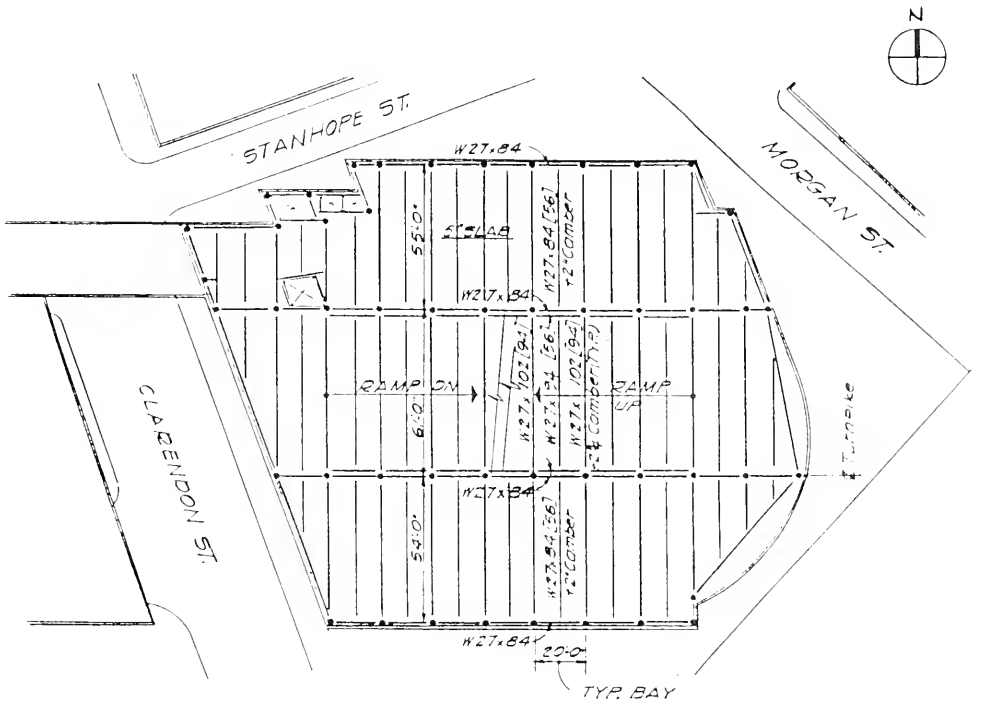
Figure 17



5" Conc. Slab - Reinf. 2.33#/sq ft.
Struct Steel beams & girders - 11.2#/sq ft.
Struct. Steel columns - 2.00 p.s.f.
Shear studs ¾"Ø x 3½"long - 1 stud per one lb. of struct. steel.

THIRD FLOOR FRAMING PLAN

Figure 18



5" Conc. Slab - Reinf. 2.93#/sq. ft.
Struct. Steel beams & girders - 11.2#/sq. ft.*
Struct. Steel columns - 2.00 P.S.F.
Shear Studs $\frac{3}{4}$" ϕ x 5$\frac{1}{2}$" long 1 stud per one lb of Struct Steel.

TYPICAL FLOOR FRAMING PLAN

Figure 19

Cost Estimate

Introduction

To determine the projected construction costs the Perini Corporation has prepared a cost estimate based upon the recommended scheme. This estimate represents a conservative approach based upon their experience with the Copley Place air-rights development and their area calculations of 267,000 SF parking, 48,000 SF tenant/retail space for a total of 315,000 SF.

Project Cost Components

The project and cost estimate can be broken down into the following major components:

1. Base Building Shell. This component includes the cost to provide a base shell building including commercial space as illustrated in addition to all requirements for the parking structure.

2. Air-Rights Costs. This component represents costs above and beyond those standard for a project of this type due to the site location over the Massachusetts Turnpike.

3. Commercial Area Costs. This component represents the cost to provide a base shell structure in addition to building finishes and services to house tenant a retail functions. In addition it includes a tenant fit-up allowance to complete these commercial areas.

Cost Issues

There are several elements associated with this project and site which made it unique and add to the cost of this project. These include:

1. Irregular and small site: This issue will generate costs associated with access, storage, structure and erection sequence.

2. Air-Rights: The access to the Turnpike at restricted hours and construction restrictions. This is addressed in air-rights costs.

3. Foundations: The depth of the piles and method of placement have costs which represent current uncertainties. These can be clarified during further study.

4. Commercial Space: The small amount of Commercial Space on several levels does not generate economies of scale.

5. Garage access: The upper level garage with ramp access from street level and bridge add to that associated with typical garage costs.

struction Cost nary

The following is a summary and analysis of the Perini estimate. See appendix for complete breakdowns.

1. CONSTRUCTION COST FOR BASE BUILDING SHELL

1.1 Total Construction Cost of Project (excl. tenant allowance)		$17,358,000	
1.2 Minus Costs of Air-Rights		-1,722,000	
1.3 Minus costs of Tenant/Retail		-1,545,000	
1.4 Total Cost Shell (includes garage elements)		$14,091,000	
1.5 Total Shell Area (SF)	315,000 SF		
1.6 Cost/Area ($/SF)	$44.73		

2. CONSTRUCTION COST DUE TO AIR-RIGHTS CONSTRAINTS

2.1 Total Cost Contribution Due to Air-Rights		1,722,000	$ 1,722,000
2.2 Total Project Area (SF)	315,000		
2.3 Cost/Area (project)	$ 5.47		
2.4 Total Air-Right Area (SF)	(31,807)		
2.5 Cost/Area (Air-Right footprint)	($55.39)		

3. CONSTRUCTION COST DUE TO COMMERCIAL SPACE (Tenant and Retail)

3.1 Total Commercial Area (SF)	48,000 SF		
3.2 Cost Commercial Shell @$44.74/SF		2,147,040	
3.3 Cost of Tenant/Retail Base Contribution		1,545,000	
3.4 Total Commercial Base		3,692,040	3,692,040
3.5 Cost/Area/(Commercial)	$76.92		
3.6 Commercial Tenant Fit-Up Allowance	$23.33	1,120,000	1,120,000

4. CONSTRUCTION COST FOR GARAGE

4.1 Garage Area	267,000 SF		
4.2 Cost/Area (shell cost 1.6)	$44.73		
4.3 Total Garage Cost		$11,942,910	11,942,910

5. TOTAL CONSTRUCTION COST (includes, air rights, tenant base and tenant allowance)

5.1 Total Construction Cost (line items 2.1 +3.4 +3.6 +4.3)		$ 18,476,950 (say $18,478,000
5.2 Total Project Area	315,000	
5.3 Cost/Area ($/SF)	$58.66	

Appendix

Program and Preliminary Code Analysis

Assumed Program
Tenant Area

It is our understanding that the tenant space in the proposed John Hancock Garage must occupy 30,000 square feet of space that is over "non air rights ground". This area requirement can be achieved on this site by building two or three floors of tenant space; basement, first floor and second floor.

The public/private spaces of the tenant program can be accommodated on separate floors. One floor should provide the necessary access from the street which accommodates the 3,000 square feet of street accessible area. Also situated on the first floor are the covered loading docks for three small trucks and a public street Lobby. Offices, private work, and storage areas can be located on other floors.

Program Summary

Site	GSF	No. of Parking Spaces
John Hancock Property	11,398	
Mass. Turnpike Authority (4,749 banked area) (1,300 air rights over railroad)	31,087	
*Remainder of non-MTA property assumed Hancock Ownership		
Subtotal	42,485	
Proposed commercial/ garage facility		
a. Basement (EL. 104)		
Tenant	12,000	
Subtotal	12,000	
b.1st Floor (EL. 116 & 119)		
Tenant	9,488	
Retail	15,460	
Parking/Access	6,980	
Subtotal	31,928	
c. 2nd Floor (EL. 131)		
Tenant	9,920	
Parking	23,202	
Subtotal	33,122	
d. Seven Typical Garage Floor (EL 141-201)		
Parking/level	32,597	96/level
Subtotal floor 3-8	244,478	747
Bridge (EL 151-3rd floor)	1,340	
Subtotal floors 3-8 plus bridge	245,818	747
TOTAL	322,868	747
Summary by Use		
Tenant	31,408	
Retail	15,460	
Parking including Ramps.	276,000	747
TOTAL	322,868	747

Preliminary Building Code Analysis

Review procedures for each of these controls are summarized as follows:

The principal sections of the Massachusetts State Building Code which affect the site plan on the John Hancock commercial/garage site are summarized below. A more detailed code analysis is required prior to the start of the architectural design.

Type of Occupancy:

The commercial areas are classified as "Use Group B, Business Buildings", the garage is classified as an open parking structure, "Rublic Garage Group 2" in the Massachusetts Code. Special requirements for open parking structures are given in Section 429.0 of the Code.

Type of Construction:

Considering the height of the building, the size of the site, its accessibility on the north, east and west and its occupancy, the building may be constructed of Type 2C construction in accordance with the Massachusetts State Building Code. This classification requires that the structure be noncombustible but requires no fire rating.

Building Separation and Exterior Walls:

According to Table 302, exterior walls located 30 feet or more away from an adjacent exterior wall do not require a fire rating or rated protected exterior openings.

The mixed uses shall be completely separated by fire walls having a fire-resistance rating corresponding to the highest fire grading prescribed in Table 902 for the separate uses.

Occupancy Loads:

Table 606 indicates that a ratio of one person per 100 gross square feet should be used to determine occupancy load for a business occupancy. This figure should be used for overall planning purposes, but may be reduced according to other sections as detailed design proceeds.

Exit Travel Distances:

609.5 Open Parking Structures: Parking structures shall not have less than two (2) exitways from each parking tier. The maximum distance from any point on a parking tier to an exitway at that tier shall not exceed 300 feet. Unenclosed vehicle ramps may be considered as required exitways if pedestrian facilities are provided. Interior exitway stairways need not be enclosed.

Zoning Analysis

The proposed John Hancock Garage site is located in a B-8 Business-8 (B-8) zoning district under the "Boston Zoning Code".

Allowable Uses:

The users permitted in the B-8 district include:

- single family dwellings
- two-family dwellings
- multi-family dwellings
- lodging or boarding house
- hotel
- day-care center
- library or museum
- place of worship
- adult education center
- most offices
- most service establishments
- bus terminals

Dimensional Regulations:

The maximum floor area ratio (FAR) in the B-8 district is 8.0. For a 42,485 square foot lot, the allowable density is 339,880 gross square feet.

There are no height restrictions; no usable open space requirements; no minimum lot size, area or width; and no front or side yard requirements which apply to the site.

The rear yard minimum depth is regulated by the equation 10 + L/20 (in feet).

The setback of the parapet is required to equal:

$$\frac{H + L'}{7}$$

where L' = length of wall parallel to the lot line, measured parallel to lot line at greatest length above the height below which no setback is required.

Parking Requirements:

Accessory off-street parking facilities is not required.

Off-street loading is required in B-8 zoning districts. Assuming 15,000 to 50,000 square feet gross floor area, one loading bay is required. The loading bay is 10 feet in width, 25 feet in length, 14 feet in height not including maneuvering areas and access drive.

Required Public Agency Approvals

Required Public Agency Approvals

Zoning Approval By-Right: Zoning compliance is checked by the Boston Building Department (Superintendent of Buildings) prior to issuing building and occupancy permits.

Bridge Approval: The Public Improvement Commission chaired by the Public Works Department must vote approval for a bridge which crosses a public street (public hearing).

Need approval from the Public Improvements Commission (PIC) for curb cuts, utility hook-ups and the air-rights approval for a bridge over Clarendon Street.

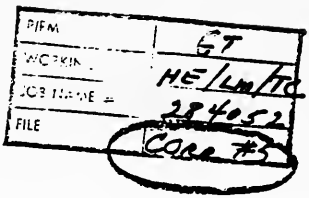
The City has an EPA-mandated parking freeze within which it must allocate the construction of new parking spaces to ensure compliance with the objectives of that freeze. Several other parcels in this general area are also programmed for development. A determination needs to be made as to whether the freeze affects this project.

The Massachusetts Turnpike Authority has a major interest since a portion of the garage would be on air-rights over a portion of the Turnpike. Their issues are varied and would include structural, financial, ventilation, traffic maintenance, etc., as in the existing John Hancock Garage (see February 14, 1985 meeting notes with the MTA). A major issue is whether the preparation of a State Environmental Impact Report (EIR) would be required. The State's Executive Office of Environmental Affairs (EOEA) is charged with implementing the provisions of the Massachusetts Environmental Protection Act (MEPA). EOEA has established a MEPA Unit which has a set of guidelines with which project proponents must comply prior to commencing construction. MEPA's procedures require the preparation of an Environmental Notification Form (ENF) which is a standard form of some 6 to 10 pages.

The ENF requires the project proponent to comment on how the project would affect a range of environmental, social and economic concerns such as traffic, air quality, vegetation, irreplaceable resources, land use, etc. When completed, the ENF is published for public review by MEPA staff and a determination is made as to whether the preparation of an EIR is required. If so, then MEPA conducts a public scoping meeting and issues a certificate letter as to what items need to be addressed in the EIR. The garage must conform to the "Boston Zoning Code". The Code has been reviewed and can be met by the program and design.

The appropriate sections of the Massachusetts State Building Code have been reviewed and the proposed John Hancock commercial/garage will be designed to meet these issues.

Ellenzweig, Moore and Associates, Inc. | Architects Planners | 65 Winthrop Street Cambridge, Massachusetts 02138 (617) 491-5575 | Harry Ellenzweig Leslie Moore



14 February 1985

Mr. Robert J. Burbank
Director of Building Construction
John Hancock Mutual Life Insurance
John Hancock Place
P. O. Box 111
Boston, MA 02117

Re: John Hancock Air Rights Garage Feasibility

Subj: Meeting at Mass Turnpike Authority Suite 5170
2:00 PM 1 February 1985

Pres: Melvin Crain - MTA
David Nagle - MTA
Bob Burbank - John Hancock
Michael Jolliffe - ZA
George Tremblay - EMA

Dear Bob:

The following are notes of the above referenced project.

1. The purpose of the meeting was to introduce the Feasibility study for the proposed air rights facility and elicit MTA comments and requirements for such a project.

2. Traffic control during construction is a main concern of MTA.

   a. All lanes of east or west in commuter direction must be open during peak hours.

   b. During off peak times 1 lane in each direction can be closed.

   c. MTA wants to minimize or eliminate closing of east or west direction of traffic due to remote availability of cross over points.

   d. All programs to be coordinated with MTA.

3. Clearance required is 14'-3" min., Area including signs will require more.

4. Mechanical/Electrical requirements will include:

   a. Ventilation - Exhaust for smoke and CO activated.
   b. Lighting - Transition bright area and ambient lighting. Fixture type to be coordinated with MTA: emergency lighting.
   c. Fire protection - Drystand pipe continued to Turnpike.

5. Sloping portion of land between Hancock property and Turnpike is owned by MTA (Approximately 5000 SF). This land could be included in air rights lease. If Hancock wanted to buy this it would be through public auction after it was determined to be excess.

6. Emergency exits from Turnpike to street level may be required by Turnpike.

7. Payment of utility energy costs for Turnpike should be paid by Hancock.

If you have any further questions, please do not hesitate to call.

Very truly yours,

ELLENZWEIG, MOORE AND ASSOCIATES, INC.

George T. Tremblay

GTT/dh
5957L
84052

cc: Michael Jolliffe - ZA
Anthony DiSarcina - SDA

Mechanical Engineer's Report

C. A. CROWLEY
ENGINEERING, INC.
40-48 N. Main St.
MIDDLEBORO, MA 02346

947-6888 986-6343

P/PM	GT
~~CHG NO~~	
WORKING COPY	~~KG~~, ~~LG~~, TC
JOB NAME #	284052
FILE	5

LETTER OF TRANSMITTAL

DATE 2-28-85 JOB NO 48004

ATTENTION George Tremblay

RE: Proposed John Hancock Garage Site Feasibility Study

TO Ellenzweig, Moore & Assoc
65 Winthrop St.
Cambridge, Ma

RECEIVED
FEB 28 1985
ELLENZWEIG, MOORE & ASSOCIATES, INC.

WE ARE SENDING YOU ☐ Attached ☐ Under separate cover via ______ the following items:

☐ Shop drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications

☐ Copy of letter ☐ Change order ☐ ______

COPIES	DATE	NO.	DESCRIPTION
1	2-28-85		Budget Est.
1	2-28-85		Mech/Elec Equip Rooms - Area req.
1	2-28-85		HVAC outline
1	2-28-85		Plumbing and Fire Protection outline
1	2-28-85		Elec / outline

THESE ARE TRANSMITTED as checked below:

☐ For approval ☐ Approved as submitted ☐ Resubmit ______ copies for approval

☐ For your use ☐ Approved as noted ☐ Submit ______ copies for distribution

☐ As requested ☐ Returned for corrections ☐ Return ______ corrected prints

☐ For review and comment ☐ ______

☐ FOR BIDS DUE ______ 19 ______ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS ______

COPY TO ______

SIGNED: Charles A. Crowley

If enclosures are not as noted, kindly notify us at once.

PRODUCT 240-3 NEBS Inc., Groton, Mass. 01471

February 28, 1985
Job No: 48004

John Hancock Parking Garage
Boston, Mass.

Air Rights

Required Mechanical/Electrical Equipment Rooms

Fire protection service	3 x 4	=	12 square feet
Emergency generator	14 x 10	=	140 square feet
Electric room	12 x 12	=	144 square feet
Telephone service	12 x 6	=	72 square feet
Mechanical room	30 x 30	=	900 square feet

February 28, 1985
Job No: 48004

John Hancock Parking Garage
Boston, Mass.

Heating, Ventilating and Air Conditioning

Mass. Pike Ventilation - The proposed new air rights parking garage will require D.E.Q.E. approval of the turnpike ventilation. The preliminary concept indicates the turnpike will be open on one side. This is a similar concept to the existing John Hancock air rights garage. The approved vent system, there consists of exhaust fans discharging through a shaftway to the roof. That system is operated by a carbon monoxide sampler.

Although short sections of enclosed highways, especially with light traffic density, are often self-venting by traffic induced air flow, this project with the parallel Boston and Albany rail line and the adjacent Hancock, Copley and Prudential tunnels in sequence will require ventilation. Forced mechanical ventilation will dilute and remove hazardous exhaust gases from internal combustion engines. Carbon monoxide (CO) is of greatest concern and will govern the ventilation rate.

Guidelines developed by the U. S. Enviromental Protection Agency (EPA) and jointly promulgated with the Federal Highway Administration (FHWA) state that adequate protection to highway tunnel users is offered if the CO concentration does not exceed 125 Mg/Kg (PPM) and the exposure time does not exceed one hour.

For fire protection, industry standards recommend, and FHWA endorses, a ventilation criteria of not less than 100 CFM per lane-foot of highway tunnel.

The ultimate design will have to meet the requirement of the Massachusetts Turnpike Authority as well as the local state and federal agencies listed.

Elevator Core Heating and Ventilating - Is proposed to provide heating and ventilating in the elevator lobby at each level. The elevator machine room and egress stair will also be heated.

Commercial Area HVAC - Provisions will be made to supply a central heating and air conditioning system for the commercial area. The system will include all head end equipment to tenant areas. Tenant space layouts will conform to leasing package.

Retail Area HVAC - The retail area HVAC will be handled in a similar manner to the commercial area.

Snow Melters - Fuel fired cylinders depressed in the rooftop slab will be used for snow disposal from that level. Waste water will be piped from the cylinders to the roof drainge system.

The building design will require adequate open areas on all exposures to eliminate the necessity of ventilation on the parking levels. It is assumed that similar fenestration as the existing John Hancock Parking Garage.

February 28, 1985
Job No: 48004

John Hancock Parking Garage
Boston, Mass.

Plumbing & Fire Protection

A drainage system will be required to serve the upper or roof parking level as well as the covered levels of the facility. The existing facility has a single riser system which services all levels. Since that time there has been a change to a dual riser system for parking garages. One system being a storm drainage system that serves only the roof or uncovered level of the garage. This system would discharge into a storm drainage system. The second set of risers would serve the covered levels of the facility and would discharge through a gasoline trap into a sanitary sewer. If the single riser concept is utilized, a much larger gasoline trap is usually required to be able to separate the undesirable liquids when a high volume of flow is encountered during a storm. The single riser system is generally less costly. However, obtaining acceptance with the City of Boston could prove to be a problem. Both alternatives will have to be explored.

The retail/commercial space on the first level, will have provisions for sanitary drainage to accomodate toilets and what other facilities might be provided within the space.

A means for washing down the garage levels should be provided within the facility. This would generally consist of one or two risers with valves on each level that will allow connection of a hose for washing down the facility. These risers would normally be dry and would be activated from a controlled location when required.

The building will be required to have standpipes. There are high service water lines in the vicinity and these most likely will be utilized as the water source. There are three generally accepted types of standpipe systems in garages. One is a completely dry system that is not connected to the municipal water supply. When water is required in the building, the fire department provides it directly through a fire department connection. A Second type of system is one in which the system is dry and there is a connection to the municipal water supply. The fire department opens this valve and fills the system with water when required. When through, the valve will be closed and the system drained down. The third option available is a system which is dry and filled with compressed air. Upon opening any valve anywhere in the system, the reduction in air pressure allows a dry pipe valve to open and automatically fill the system with water. This system is the one most prone to maintenance concerns. We believe that the second option is the most appropriate for the facility and will meet with the approval of the Boston Fire Department.

The first floor, non-parking areas of the building should receive sprinkler protection. The remainder of the garage will not require sprinklers unless the building exceeds 7 stories or 70 feet in height, under those circumstances the entire facility would have to be sprinkled utilizing a dry pipe system.

If it is desired to utilize snow melters on the roof of this facility as exists in the present garage, a gas service will have to be extended to the snow melters.

At the present time, there is a 24" high service water line and a 12" gas line suspended over the Mass. Turnpike along Columbus Avenue. These services will have to be dealt with by way of either incorporating the structure around them or relocating them to accomodate the structure.

February 28,1985
Job No: 48004

John Hancock Parking Garage
Boston, Mass.

Electrical

1. A new electric service will be required for the facility. Boston Edison Co. will extend a 13,800 volt primary voltage into an electric vault located within the facility. Transformation and outfitting of the vault will be done by the Boston Edison Co. The transformation to a secondary voltage, 277/408V will be required to be extended into a separate electric room. This room would contain switchgear and various other distribution equipment. 480 volts line to line would be used to operate three phase motors, (elevators, fans, and pumps) while 277 volts line to neutral would be utilized for lighting. Distribution to each level for lighting and power would be required. 120/208 volts would be acquired by means of step-down transformers where required. Commercial spaces would be metered and distributed separately from the rest of the facility.

2. An emergency power system will be required. Emergency power will be supplied by diesel generator via an automatic transfer switch which is activated upon loss of power. Emergency power is distributed to lighting fixtures, pumps, exhaust fans and exit signs as required.

3. The existing main garage lighting system consists of surface mounted fluorescent fixtures. The new garage lighting system would match the existing system. Lighting would be powered from panels on each level. Selected fixtures and exit signs would be powered from the emergency power distribution system. Lobbies would illuminated by a low brightness fluorescent or an incandescent downlight. Also provide flourescent high output lighting to match the existing turnpike lighting scheme.

4. A fire alarm system with remote annunciation, smoke detectors, heat detectors, flow switches, tamper switches and visual/audible alarms.

5. Provisions for a closed circuit television system to accomodate the Owner. These systems would be installed in lobbies, stairwells, and other vandal related areas.

6. Provisions for an illuminated signage system for control of traffic flow as required.

Traffic Engineer's Report

January 31, 1985

HANCOCK GARAGE FEASIBILITY STUDY

Technical Memorandum # 1

The purpose of this memorandum is to summarize the traffic information collected to date and to provide a summary of the conclusions and recommendations of the analyses of this feasibility study.

These traffic analyses are provided to Ellensweig, Moore and Associates, Inc and Zaldastani Associates, Inc, consulting architects and engineers, as a part of the overall work effort to analyze the feasibility of constructing an additional parking facility (and possible retail/office space) next to the existing Hancock parking garage located over the Massachusetts Turnpike, between Clarendon and Dartmouth Streets in the City of Boston. The additional facility would be in the area bounded by Clarendon Street, Stanhope Street, Morgan Street and Columbus Avenue, partially air-righted over the Turnpike.

This feasibility level of traffic analysis is concerned with:

a) existing garage access and egress usage patterns
b) immediately abutting intersections
c) potential peak period demand for a new, combined facility
d) access/egress to the new, combined facility.
e) other general traffic issues

A. Existing Garage Access/Egress Usage

The existing garage is accessed via a three-lane set of ticket booths on the first floor which are accessed by a right turn from Clarendon Street southbound. These booths also handle exiting traffic which makes a right turn onto Clarendon Street southbound. These booths control access to the spaces on floors 2 and 3, which are open to general public parking. The booths handle payments on a pay-out basis.

Floors 4, 5, 6, 7 and 8 are for Hancock employee usage and are accessible from two circular drum ramps; one at Trinity Place and the other at Clarendon Street. During the morning peak period, both drum ramps are operated inbound to receive vehicles. During the evening peak period, both drum ramps operate to discharge vehicles.

Hancock vehicles must display a medallion which hangs from the rear view mirror. A garage attendant is present at each drum during the morning peak periods to check vehicles. The Hancock floors are also accessible from the ticket booths via an internal ramp connecting the 3rd and 4th floors. This connecting ramp is also controlled by the operator to allow only Hancock vehicles above the third floor.

286 Summer Street
Suite 205
Boston, Massachusetts 02210
617 423-0186

A traffic survey was made of vehicles entering and exiting all access points during both the morning and evening peak periods. The peak hour arrival rates at these access points are shown in Figure 1, Existing Garage Volumes. The peak hour garage volumes are summarized as follows:

	Trinity Drum	Clarendon Drum	Total Hancock	Public Parking	Grand Total
AM vehicle arrivals	292	415	707	272	979
PM vehicle departures	170	396	566	150	716

Figure 2, Existing Garage Usage, gives parking arrival/departure rates for the entire peak periods. As noted, the garage is essentially full by 9:00 AM with about 25% of the arrivals occuring prior to 7:15AM, about 50% occuring during the hour from 7:15 to 8:15AM and the remaining 25% arriving after 8:15AM.

The departure rates are less pronounced. About half of the Hancock spaces exit prior to 4:15PM with a little less than then half exiting during the evening peak hour from 4:15 to 5:15PM. At 5:30PM, only some 120 vehicles remained on the Hancock floors, less than 10% of all Hancock parkers. The public parkers exited at much lower rates, with only a little more than half of them exiting by 5:15PM and just under 50% remaining in the garage after 5:30PM.

The general operation of both the ramps and the ticket booths was smooth and relatively free flowing during both morning and evening peak periods. No unusual backups occurred and intermittent queues of vehicles cleared up within a short period of time. The drums in particular accepted vehicles at excellent rates even in the morning when the stickers needed to be checked. The parkers are obviously regular users of the facility and are used to the traffic movements required to enter and exit the facility.

There was a significant amount of carpooling observed, but it was not possible to calculate the rates because many riders exit vehicles along Stuart or Clarendon Streets prior to entering the ramps. The garage has about 50 spaces allocated to vanpools (about 15 passenger vans) and most of these spaces were indeed occupied by vans.

B. Abutting Intersections

The Hancock garage affects several intersections in this general area. For the purposes of this feasibility effort, only the three Stuart Street intersections with Dartmouth Street, Trinity Place and Clarendon Street were analyzed. Morning and evening peak period traffic counts were made at the intersections of Stuart Street with Trinity Place and with Clarendon Street. Traffic count information was also obtained from the Draft Environmental Impact Report (DEIR) prepared for the 500 Boylston Street Project (the New England Mutual Life Insurance project at the St James Street Garage site). The traffic appendix for this DEIR (prepared by Vanasse/Hangen Associates, Inc) contains recent 1984 traffic counts for some intersections near the Hancock garage.

From both sources of information, the morning and evening peak hour traffic volumes for the three Stuart Street intersections and the garage entry/exit points were prepared and are shown on Figure 3, Existing Traffic Volumes. A traffic level of service analysis was made of these three intersections and showed that existing traffic operations are considered at satisifactory levels of service. (This was corroborated by the analysis in the DEIR cited above.)

The Stuart-Dartmouth intersection was observed to operate smoothly. The Stuart-Trinity intersection operated well in the morning. During the evening, a police officer (engaged by Hancock) controlled traffic for about one-half of the evening peak hour. This control is necesary because of the portion of the Trinity drum traffic which proceeds northbound on Trinity Place toward St James Street. With the police officer control, the intersection operates very well. The Stuart-Clarendon intersection had some intermittent queues on Stuart Street extending back towards Trinity Place, but these queues did not last very long and were dispersed with the aid of the police officer.

C. New Facility Demand

One of the major questions to be addressed in this feasibility study is whether the existing system of drums and ticket booths can also adequately service the additional spaces in the new facility. To that extent, an analysis was made of the peak period rates of vehicles arriving and departing the existing garage. Figure 4, Existing Garage Usage, shows that the combination of the two drum ramps currently accept some 707 vehicles of the 1,300 vehicles parked on the Hancock floors during the morning peak hour. This is an acceptance rate of some 54% of the capacity of the Hancock floors. During the evening, the maximum peak hour discharge rate is some 44% of the Hancock floors' capacity. This lower rate does not appear to be due to operational problems, but rather to a spreading out of the evening peak hour vehicles.

For purposes of this analysis, the potential new building is assumed to hold a total of 600 new spaces. These spaces could be used solely by addtional Hancock parkers or some additional parking could be allocated to public parkers. This analysis assumed two scenarios; the first being that all of the new building spaces would be Hancock users, the second being that all of the new building spaces would also be Hancock users, but that the 4th floor of the existing building would be converted to public parking.

Figure 5, Future Garage Usage, shows the results of peak hour demand under both of these scenarios. The analysis assumes that the total new facility would need to be able to accept or discharge 50% of the total capacity within the relevant peak hour. This assumption assumes that the remaining 50% of entries/exits occur within an hour before and a half hour after the peak hour. This yields a total peak period of about 2.5 hours and is operable in an organization such as Hancock because of their commitment to staggered work hours.

The analysis also assumes that the new facility would be connected to the existing facility, that only Hancock users would be allowed in the new facility and that the drum ramps would continue to function as the primary access/egress for all Hancock users whether in the existing or new facility. This type of analysis is a worst case analysis for the existing drum ramps.

The drum ramps would then need to carry a maximum total of 950 vehicles in the first scenario where all of the new spaces are allocated only to Hancock parkers. With two drums, an average of 475 vehicles would use each drum during each peak hour.

The existing drum operations have the Clarendon Street drum carrying some 415 of the total of 707 vehicles using both drums during the morning peak hour or about 60% of all existing drum entering traffic. If these same proportions were to hold with the new facility, then the Clarendon drum would carry some 570 vehicles (950)(.60) of the total 950 vehicles apt to utilize the two drum ramps. A drum ramp has a nominal capacity of about 600 vehicles per hour under good operating conditions. Both of the two Hancock drum ramps have excellent design characteristics, are well lighted and signed and are considered able to operate near maximum ramp capacities.

From Figure 5, it is noted that the second Scenario, which allocates floor 4 as an additional public parking floor would increase the demand on the ticket booth operations to about 390 vehicles per hour (about 50% of the increased public parking capacity of 730 spaces). Ticket booth dispensors can accept entering vehicles at rates from 350 to 500 per hour with good design characteristics. They can discharge at rates between 150 and 225 vehicles per hour with similar good design characteristics.

With three booths and the ability to use two booths in the predominant direction, the new maximum demand rate of about 390 vehicles per hour would translate into about 200 vehicles per hour per booth. The design of the existing booths is very good and the facility uses a monthly pass system so that many of the parkers are controlled by an operator who waves them in or out upon display of the monthly pass. If the new facility were to allocate an additional floor of spaces to public parking and to increase the public parking from 520 to 780 spaces, then the existing booth system would be adequate to handle such an operation.

D. Access/Egress to New Facility

From a demand analysis of the existing two drums and ticket booth system, it is not necessary to provide additional access to the new facility if an adequate connection can be made to bridge the two facilities. It may be desirable to provide a simple ramp with two ticket booths on the new parcel from a convenience point of view or under the possibilty that one of the drum ramps could be incapacitated for some reason.

From a traffic access and egress viewpoint, it would be desirable to have that new ramp connect into Morgan Street which itself connects into Columbus Avenue from which vehicles could have a maximum flexibility to disperse.

E. General Traffic Issues

An extensive analysis of the effects of the additional garage traffic has not been made on additional intersections in the area of the combined garage facilities. These additional analyses would need to take into account other development projects nearby which could have an effect on intersections or streets which service both the existing and potential Hancock garage facilities.

Prior to embarking upon such an extensive analysis, the client should review the project with city and state officials to determine the extent of such a traffic analysis.

In the City, this would include the Boston Redevelopment Authority (BRA) and the Boston Traffic & Parking Department (BTP&D), both of which have traffic interests. BRA would also be concerned with general land use issues, community concerns and other planning issues. Clearly the Mayor's Office would also have an interest in this project. The City also has a Public Improvements Commission (PIC) which is the City's official body for accepting modifications to public ways. This approval would be necessary for curb cuts, utility hook-ups and the air-rights approval for a bridge over Clarendon Stret.

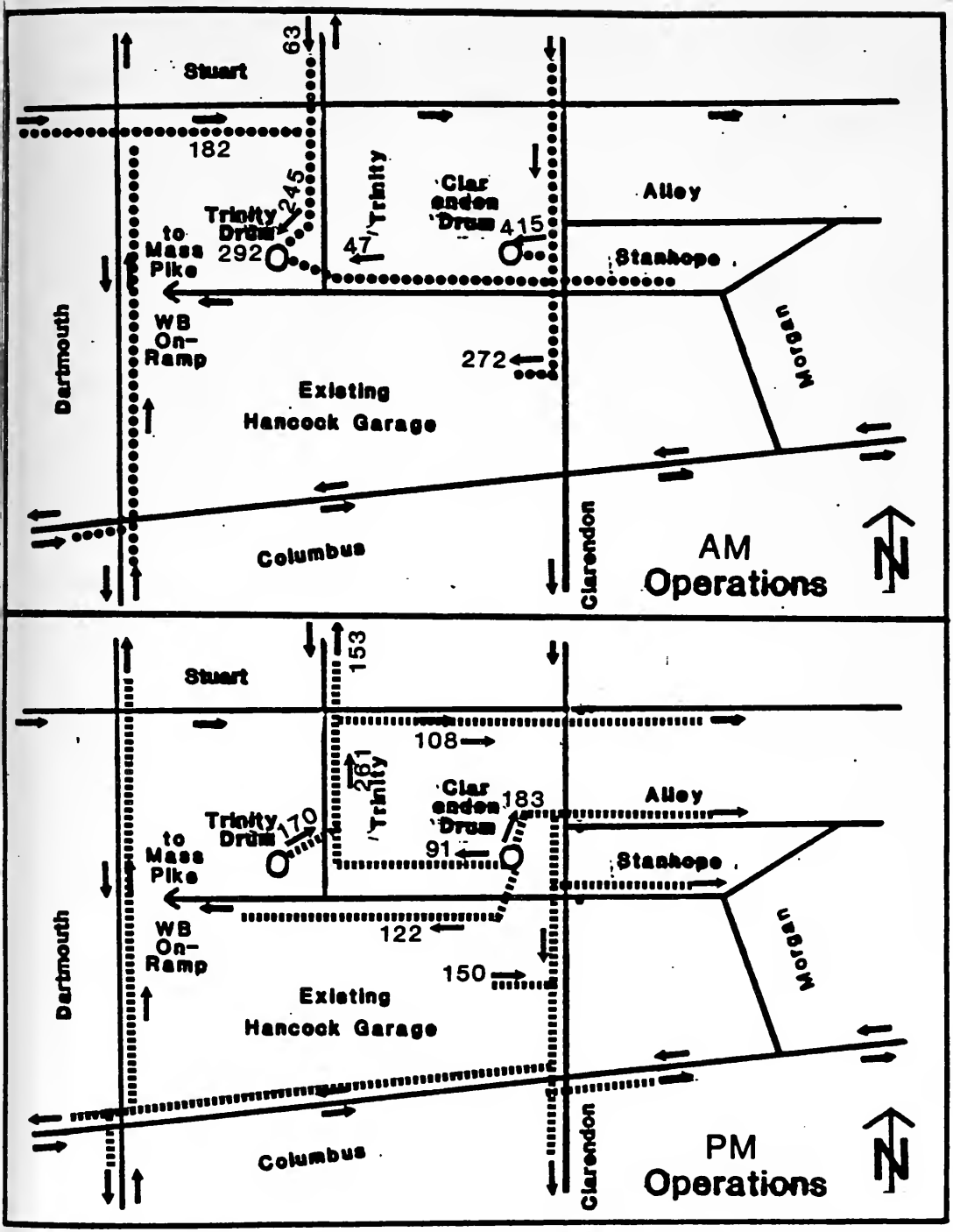
The City also has a EPA-mandated parking freeze within which it must allocate the cosntruction of new parking spaces to ensure compliance with the objectives of that freeze. Several other parcels in this general area are also programmed for development. A determination needs to be made as to whether the freeze affects this project.

In the State, certainly the Massachusetts Turnpike Authority would have a major interest since a portion of the garage would be on air-rights over a portion of the Turnpike. Their issuesare varied and would include structural, finanical, ventilation, traffic maintenance, etc. Since no ramp change are proposed, they would not have a major interest in garage traffic other than as a potential increment in toll fees. Having dealt with the Turnpike on the original garage, the client whould have knowledge of their needs.

A major issue is whether the preparation of a state Enivornmental Impact Report (EIR) would be required. The state's Executive Office of Environmental Affairs (EOEA) is charged with implementing the provisions of the Massachusetts Environmental Protection Act (MEPA). EOEA has established a MEPA Unit which has a set of guidelines with which project proponents must comply prior to commencing construction. MEPA's procedures require the preparation of an Environmental Notification Form (ENF) which is a standard form of some 6 to 10 pages.

The ENF requires the project proponent to comment on how the project would affect a range of environmental, social and economic concerns such as traffic, air quality, vegetation, irreplaceable resources, land use, etc. When completed, the ENF is published for public review by MEPA staff and a determination is made as to whether the preparation of an EIR is required. If so, then MEPA conducts a public scoping meeting and issues a certificate letter as to what items need to be addressed in the EIR.

The client should begin to develop a strategy for discussing the project with appropriate city and state officials. That strategy should include those costs and benefits beyond the parameters of this physical feasibility study. Items such as tax returns, jobs, off-peak usage, etc need to be included in those discussions. In addition to other client staff disciplines involved, the inclusion of legal counsel is required to ensure that procedural and statutory requirements are satisfied.



Hancock Garage Feasibility Study Boston, Mass.	EXISTING GARAGE VOLUMES ●●●●●●●●● Entering during AM peak hour ▪▪▪▪▪▪▪▪▪▪▪▪▪ Exiting during PM peak hour	FIGURE 1

Project	HANCOCK GARAGE FEASIBILITY STUDY	Sheet ___ of ___
Subject	EXISTING GARAGE USAGE	File No. 501
		Date Jan 1985
		By AJD

AM - INTO GARAGE

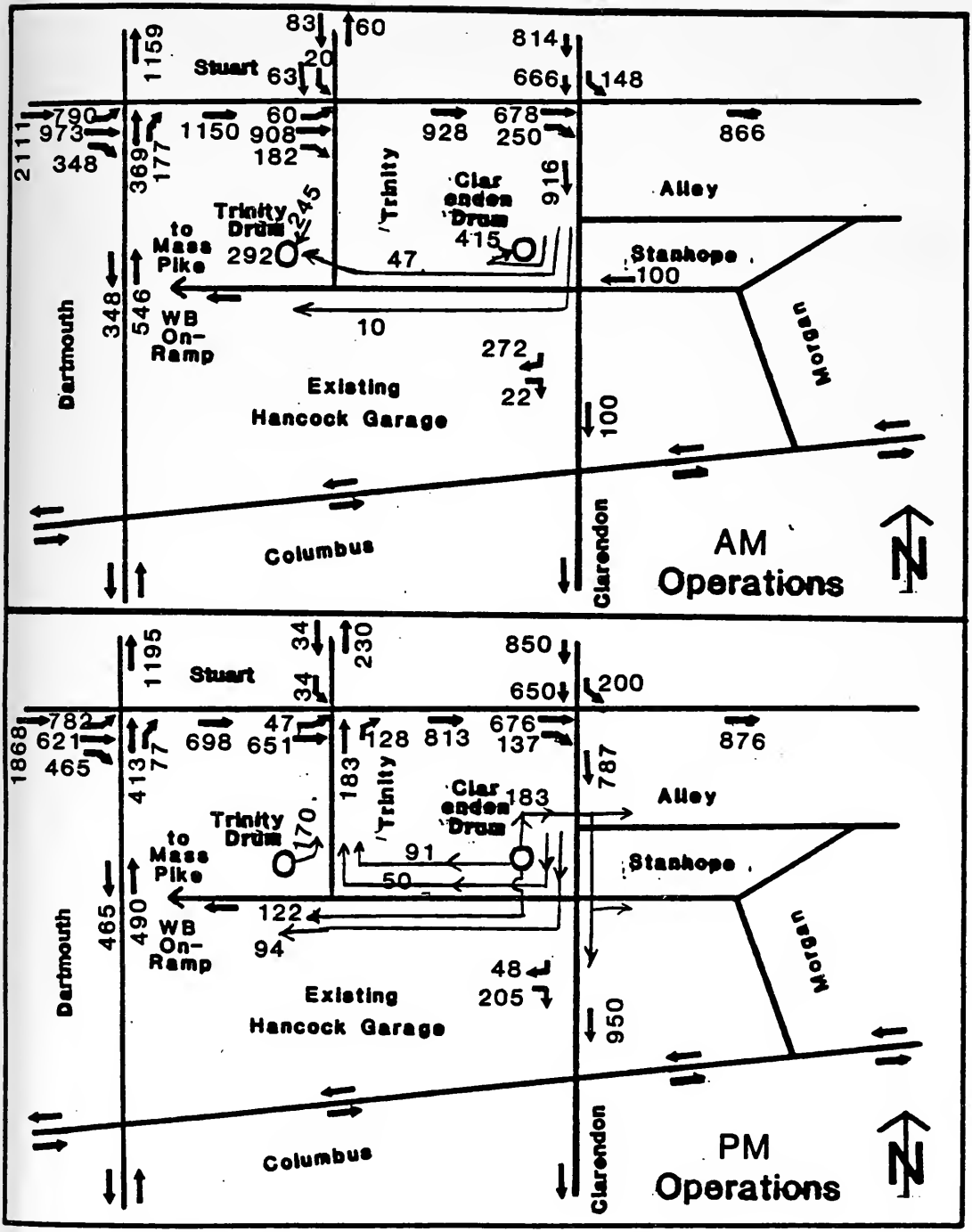
TIME PERIOD	HANCOCK PATRONS			PUBLIC	TOTAL
	TRINITY DRUM	CLARENDON DRUM	TOTAL HANCOCK	TICKET ACCESS	GARAGE
before 7:00	—	—	230	50	280
7:00 – 7:15	50	113	163	28	191
7:15 – 8:15 (P.H.)	292	415	707	272	979
8:15 - 8:45	50	100	150	120	270
after 8:45	—	—	50	50	100
total entering	392	628	1300	520	1820

PM - OUT OF GARAGE

before 3:30	-	-	277	45	322
3:30 - 4:15	89	187	276	41	317
4:15 - 5:15 (P.H.)	170	396	566	150	716
5:15 - 5:30	19	42	61	34	95
total exiting	278	625	1180	270	1450
remaining after 5:30	-	-	120	250	370

Notes:
- Assumes 260 spaces per floor
- Public floors are 2+3, = 520 spaces
- Hancock floors are 4,5,6,7,8 = 1300 spaces
- Garage is essentially full at 9:00 AM
- Garage is essentially full at 3:00 PM
- Assumes a total of 1820 spaces, not counting VIP spaces

Figure 2



Hancock Garage Feasibility Study Boston, Mass.	EXISTING TRAFFIC VOLUMES	FIGURE 3

Project HANCOCK GARAGE FEASIBILITY STUDY
Subject Existing Garage Usage

Sheet ___ of ___
File No. 501
Date Jun 85
By AJD

Existing Bldg	Hancock Spaces	Public Spaces	Total Spaces
Floors	4, 5, 6, 7, 8	2, 3	All
AM Peak Hour			
Entering vehicles	707	272	979
Space Capacity	1,300	520	1820
% Usage per capacity per hour	54%	52%	54%
PM Peak Hour			
Exiting vehicles	566	150	716
Space capacity	1300	520	1820
% Usage per capacity per hour	44%	29%	39%

Notes: Assumes 260 spaces per floor
Does not include VIP parking

Figure 4

Project HANCOCK GARAGE FEASIBILITY STUDY
Subject FUTURE GARAGE USAGE

Sheet ___ of ___
File No. 501
Date Jan 85
By AJD

Assume That new building holds 600 spaces

	Hancock Spaces	Public Spaces	Total Spaces
Alternate 1 (all new bldg spaces for Hancock)			
Floors	4,5,6,7,8,+ new bldg	2,3	—
Space capacity	1,300+600 = 1,900	520	2,420
Assume 50% usage in peak hour	950	260	1,210
Alternate 2 (use floor 4 for public)			
Floors	5,6,7,8+new bldg	2,3,4	—
Space capacity	1300-260+600 = 1640	520+260 = 780	2,420
Assume 50% usage in peak hour	820	390	1,210

Figure 5

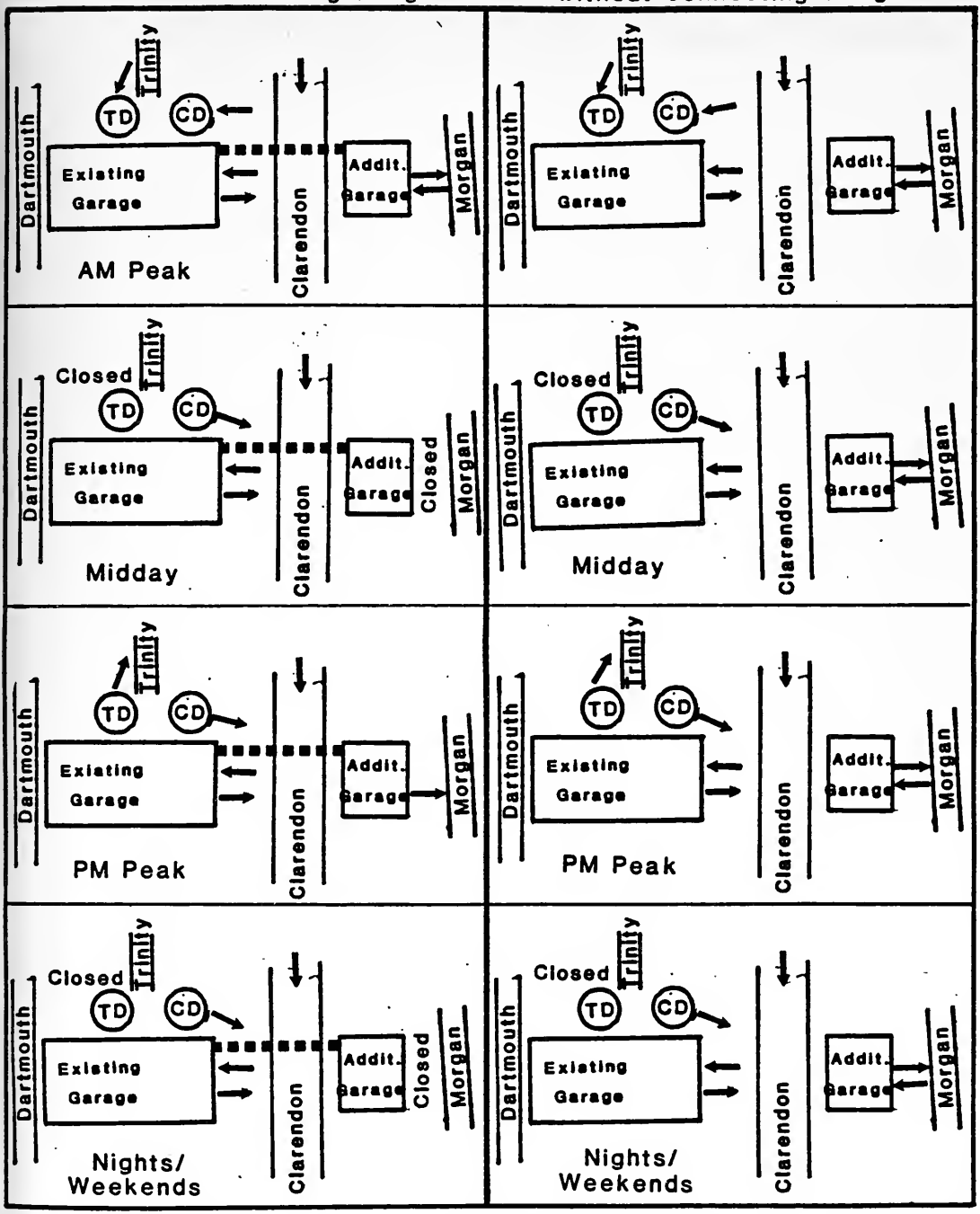


Diagram Illustrating Access/Egress Scenarios to Existing and New John Hancock Garage During Various Times of Operation

FIGURE

Geotechnical Engineer's Report

HALEY & ALDRICH, INC.

238 Main Street
P.O. Box 60
Cambridge, MA 02142
Tel. 617/492-6460

Consulting
Geotechnical Engineers
and Geologists

[illegible] P. Aldrich, Jr.
Thomas K. Liu
Edmund G. Johnson
Martin J. Murphy
David E. Thompson
Edward B. Kinner

Peter L. LeCount
Douglas G. Gifford
Joseph D. Hixner
Richard P. Stulgis
John P. Dugan, Jr.
Wesley E. Stimpson

22 February 1985
File No. 5667

P/PM	GT
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JOB NAME #	HANCOCK 5667
FILE	CONS. LTR

Ellenzweig, Moore and Associates, Inc.
65 Winthrop Street
Cambridge, Massachusetts 02138

Attention: Mr. George Tremblay

Subject: Preliminary Foundation Recommendations
Expansion of John Hancock Parking Garage
Clarendon Street and Columbus Avenue
Boston, Massachusetts

Gentlemen:

This letter presents the results of our preliminary foundation recommendations for a planned expansion of the John Hancock Parking Garage to be located north of the intersection of Clarendon Street and Columbus Avenue in Boston, Massachusetts. We briefly discussed our recommendations with your structural engineer, Mr. Michael Jolliffe of Zaldastani Associates, on 14 February. Our comments follow:

I. SITE, SUBSURFACE AND GROUNDWATER CONDITIONS

The site is a pentagon-shaped area, the southern two-thirds of which overlies the Massachusetts Turnpike, and is bounded by Clarendon Street on the west, Stanhope and Morgan Streets on the north, Columbus Avenue on the east, and a multi-tracked railroad system on the south. The north portion of the site is a paved parking area. Ground surface grades within the site vary from approximately El. 100 along the turnpike to El. 116 within the north paved area. (Elevations are in feet and refer to NGVD Datum (formerly USC&GS) plus 100 ft.) The existing Hancock Garage is located west of Clarendon Street.

We have assembled the results of 16 test borings previously drilled within and adjacent to the site, the locations of which are shown on the attached Figure 1. Five of the borings sampled the rock, three encountered refusal within the till overlying rock, and the remaining eight terminated in natural clay soils. The test borings indicate the following generalized subsurface soil and rock profile, beginning at ground surface:

Approximate Thickness in feet	Range in Top Elevation in feet	General Description
7 - 31	100 - 116	Sand, gravel, bricks, cobbles, cinders (FILL)
12 - 22	83 - 95	Soft black organic SILT, some sand, trace shells and peat
63 - 83	67 - 75	Very stiff to medium soft olive-green to gray silty CLAY, with fine sand seams (Boston Blue Clay)
0 - 15	-9 - 12	Very dense gray medium to fine SAND, little gravel and clay (GLACIAL TILL)
---	-3 - -17	Cambridge Argillite (BEDROCK)

Between October 1982 and April 1983, before the start of the adjacent Southwest Corridor Project (SWCP) construction, the water level observed in an observation well, located east of the site between the railroad tracks and turnpike (OW 2243 as shown on Figure 1), varied from El. 97 to El. 98. As a result of on-going construction the water levels in this well, since April 1983 have generally been at El. 96. The water levels observed at the completion of the test borings referenced herein, varied from El. 98 to El. 103; however, these water levels were made over a relatively short period of time and were probably influenced by water introduced into the drill hole during the drilling procedure, and consequently may not represent the static groundwater level. In any

event, the water levels can be expected to vary with precipitation, season, construction activity within the area, and other factors. As a result, water levels may vary from those observed in the previously completed explorations or observation wells.

II. PROPOSED CONSTRUCTION

The proposed structure will be seven to eight stories in height and will have a plan area at ground surface of approximately 46,000 sq. ft. The lowest one or two levels will serve as retail space, while the remaining levels will be used for parking. The lowest finish floor grade varies from El. 116 within the north portion to El. 119 within the portion overlying the turnpike. The proposed location of the structure is shown on Figure 1.

As indicated by your structural engineer, column loads along the turnpike median and south boundary (i.e., along a line located 8.5 ft. north of the northernmost track centerline) are 80 kips per lin. ft. and 45 kips per lin. ft., respectively. For a typical bay spacing of 20 ft. by 60 ft., we assume the interior column loads within the portion of the structure north of the turnpike will be in the range of 1600 kips.

III. PRELIMINARY RECOMMENDATIONS FOR FOUNDATION DESIGN AND CONSTRUCTION

The recommendations which follow are considered preliminary and are based on the results of existing subsurface information, as currently available. Additional subsurface explorations and foundation design studies will be required for final design.

It is recommended that design and construction conform to the applicable provisions of the current edition of the Massachusetts State Building Code.

It is recommended that the structure column, wall, and floor loads be supported by pile foundations driven to bearing in the glacial till or on rock encountered below the fill, organic soils and clay materials. We suggest consideration of two different pile types.

Within the area north of the turnpike, it is recommended that square precast-prestressed concrete piles be used. These piles are generally the most economical pile type within the Boston area, having been used almost exclusively for the adjacent SWCP and Copley Place projects. For preliminary design, a design capacity of 134 tons may be assumed for 14 in. square piles and a design capacity of 175 tons may be assumed for 16 in. square piles. It is not apparent at this time, without further study, which pile will provide the more economical foundation for this structure.

It is recommended that a structural steel "H" pile be used along the two column lines in or immediately adjacent to the turnpike. This pile is a non-displacement type and will minimize heave of the adjacent turnpike structure. In addition, the "H" pile is easier to handle and can be installed more quickly than the precast pile, making driving along the congested turnpike easier. For preliminary design, a HP14x117 section may be assumed to support 145 tons. This design load considers the nominal 1/8 in. reduction in steel thickness for corrosion protection, as required by the State Building Code.

Based on the test boring data available at this time, it is expected that pile lengths will generally vary from 100 to 110 ft. within the turnpike area and 120 to 130 ft. within the north area. Due to space limitations within the site and handling of the piles within the congested turnpike environment, it will probably be necessary to splice the piles.

As was done at the adjacent Copley Place project, it will be necessary to core through the median strip of the turnpike to install pile foundations. Based on the water levels reported herein, it will not be necessary to provide special dewatering measures to permit this work to proceed in the dry. However, it will probably be necessary to provide a special detail to make the restored slab permanently waterproofed.

The turnpike drawings supplied to us indicate that an 18 in. reinforced concrete pipe (RCP) is located below the center of the turnpike median and a 54 in. RCP is located 13 ft. north of the median. The invert of both pipes vary from 8 to 10 ft. below ground surface. Pile installation procedures must minimize disturbance to these pipes. It is our opinion, at this time, that the non-displacement characteristic of

H-piles will reduce the risk of damage to these pipes during pile installation. However, it will be necessary to confirm the pipe locations prior to finalizing the foundation design so that pile locations are established that do not conflict with the pipes.

We note that the existing ground surface within the area immediately north of the turnpike is as much as 10 ft. below the proposed lowest finish floor grade. It is recommended that earth fill not be placed in this area due to the potential to generate long term settlements of the underlying organic soils which could damage the adjacent turnpike structure and drainage features. It may be possible to either place lightweight fill to make the grade raise or construct a framed slab over the void. You may wish to consider incorporating some below grade space in this area.

IV. ADDITIONAL STUDIES

It is recommended that during final design, a program of additional test borings be drilled at the site, primarily within the north area where no explorations currently exist. The boring information will be required to estimate pile lengths and for the determination of soil compressibility characteristics needed to evaluate settlements associated with grade raises. Additional engineering studies will also be needed to finalize our preliminary recommendations, assist your structural engineer during final design, establish criteria for pile installation, and prepare pile specifications.

We appreciate the opportunity to provide you with preliminary recommendations for this interesting project and we look forward to providing additional engineering and construction monitoring services as the work progresses. In the meantime, if you have any questions on the above, or need additional information, please do not hesitate to contact us.

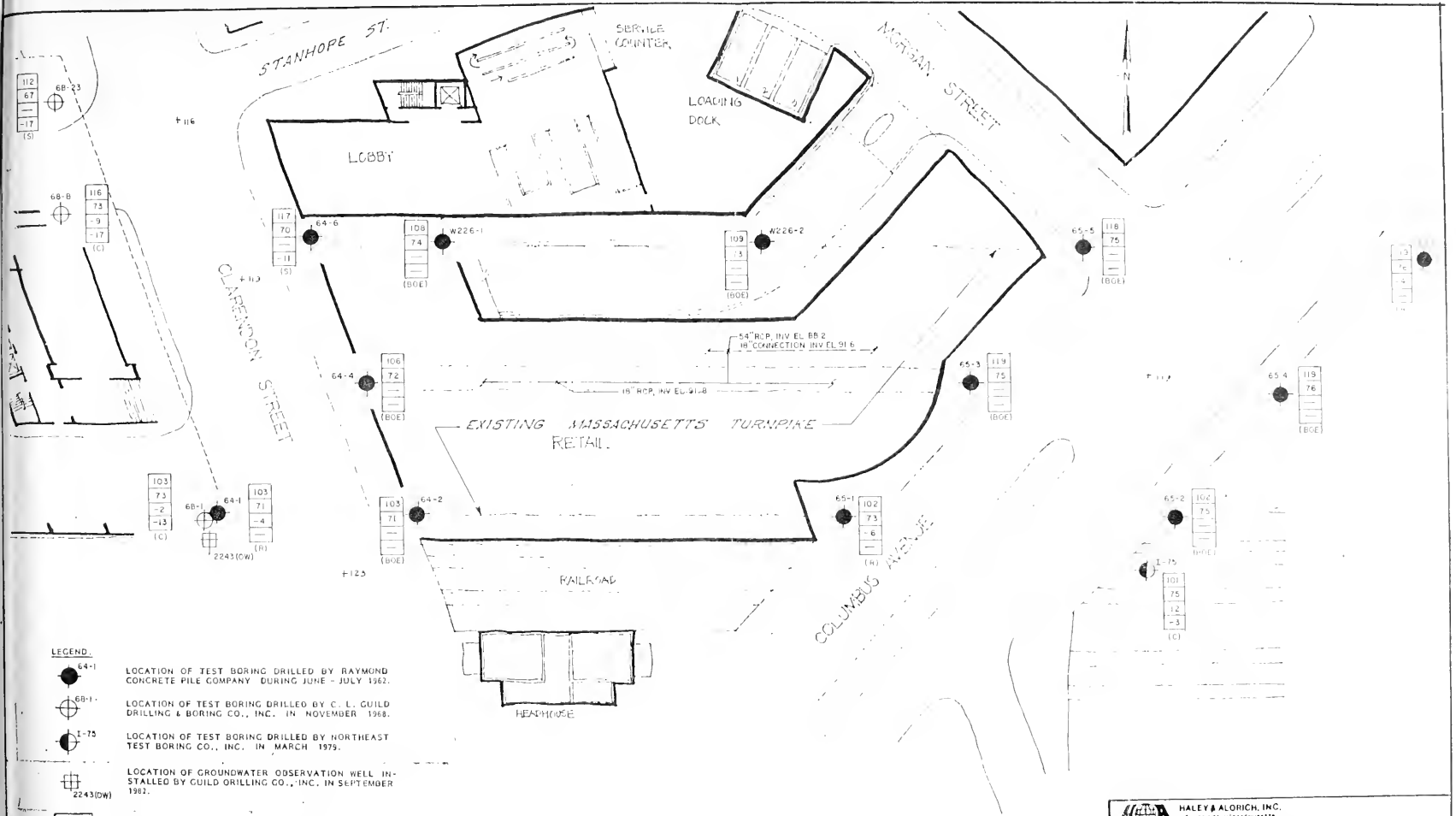
Sincerely yours,
HALEY & ALDRICH, INC.

David L. Freed
Senior Engineer

David E. Thompson
Executive Vice President

DLF:DET:lcb:0717T

Enclosure: Figure 1 - Test Boring Location Plan
xc: Zaldastani Associates; Attn: Mr. Michael Jolliffe



LEGEND:

- 64-1 — LOCATION OF TEST BORING DRILLED BY RAYMOND CONCRETE PILE COMPANY DURING JUNE - JULY 1962.
- 68-1 — LOCATION OF TEST BORING DRILLED BY C. L. GUILD DRILLING & BORING CO., INC. IN NOVEMBER 1968.
- I-75 — LOCATION OF TEST BORING DRILLED BY NORTHEAST TEST BORING CO., INC. IN MARCH 1979.
- 2243(DW) — LOCATION OF GROUNDWATER OBSERVATION WELL INSTALLED BY GUILD DRILLING CO., INC. IN SEPTEMBER 1982.

103	ELEVATION GROUND SURFACE AT BOREHOLE
73	ELEVATION TOP OF CLAY
-2	ELEVATION TOP OF GLACIAL TILL
-13	ELEVATION TOP OF ROCK
(C)	CORED ROCK
(S)	SAMPLED ROCK
(R)	REFUSAL IN GLACIAL TILL
(BOE)	BOTTOM OF EXPLORATION

NOTES:

1. THE BASE PLAN IS A REPRODUCTION OF A PLAN SUPPLIED BY ELLENZWEIG, MOORE & ASSOCIATES, INC. ON 15 FEBRUARY 1985.
2. ELEVATIONS ARE IN FEET AND REFER TO NGVD DATUM, PLUS 100 FEET.

HALEY & ALDRICH, INC.
CAMBRIDGE MASSACHUSETTS
CONSULTING GEOTECHNICAL ENGINEERS AND GEOLOGISTS

PROPOSED EXPANSION OF
JOHN HANCOCK PARKING GARAGE
BOSTON, MASSACHUSETTS

TEST BORING LOCATION PLAN

SCALE 1"=20' FEBRUARY 1985

FIGURE 1

Cost Estimate and Project Description

PERINI CORPORATION
BUILDING DIVISION
Form 84

SUMMARY SHEET

267,000 ≠ PARKING
48,000 ≠ TENNANT/COMMERCIAL

JOB: JOHN HANCOCK PARKING GARAGE
LOCATION: BOSTON, MA.
BID DATE 3.18.85 TIME:

AREA: 315,000 S.F. TOTAL VOLUME: _____ C.F.

REV. 3.18.85

	TITLE	TENANT/RETAIL CONTRIBUTION	AIR RIGHTS CONTRIBUTION	BASE
-	GENERAL CONDITIONS			1100000
02020	TRAFFIC CONTROL		300000	300000
02110	DEMOLITION AT BRIDGE CONNECTION - ALLOWANCE			5000
02120	SIDEWALK AND CURB RECONSTRUCTION			16000
02200	BUILDING EXCAVATION AND BACKFILL			87000
02210	SITE EXCAVATION, DEMOLITION, EARTH SUPPORT SYSTEM		155000	388000
02300	PILES - 14x117 AND PRECAST, PREAUGERED, LOAD TESTS ETC.		176000	1069000
02550	UTILITY RELOCATION - ALLOWANCE			150000
02650	PLAZA PAVING			21000
02700	LANDSCAPING, PLANTERS, BENCHES, ETC - ALLOWANCE			10000
03200	REINFORCING STEEL			415000
03300	CONCRETE AND FORMWORK		42000	1952000
03400	ARCHITECTURAL PRECAST CONCRETE			1300000
03450	PRECAST PLANK - 8"			148000
04200	MASONRY	128000		387000
05100	STRUCTURAL STEEL, DECK AND SHEAR STUDS			2930000
05500	MISCELLANEOUS METALS			335000
06100	ROUGH AND FINISH CARPENTRY, MILLWORK	5000		15000
07100	WATERPROOFING AND DAMPPROOFING	4000		23000
07200	THERMAL INSULATION	17000		17000
07250	SPRAYED ON FIRE PROOFING	58000	36000	94000
07500	ROOFING AT PENTHOUSES			14000
07570	TRAFFIC SURFACING AT GARAGE			262000
07900	MISCELLANEOUS CALKING - ALLOWANCE			5000
08100	HOLLOW METAL DOORS AND FRAMES	5000		14000
08300	OVERHEAD DOORS	6000		6000
08400	STOREFRONT AND ENTRANCES	58000		68000
08700	FINISH HARDWARE	8000		23000
09150	EXTERIOR PLASTER SOFFITS	132000		132000
09250	INTERIOR DRYWALL PARTITIONS	72000		72000
09300	CERAMIC TILE AT TOILET FACILITIES	29000		29000
09500	ACOUSTICAL CEILINGS	10000		16000
09900	PAINTING	20000		125000
10200	SPECIALTIES - F.E. EXTINGUISHERS, FLAGPOLES, LOCKERS ETC.	25000		36000
10400	SIGNS AND GRAPHICS - ALLOWANCE			5000
11850	GARAGE EQUIPMENT			25000
11870	LOADING DOCK EQUIPMENT	13000		13000
14200	ELEVATORS			253000
15000	HEATING, VENTILATING AND AIR CONDITIONING	336000	786000	1147000
15400	PLUMBING	116000	18000	406000
15500	FIRE PROTECTION	69000		428000
15600	SNOW MELTERS - ALLOWANCE			80000
16000	ELECTRICAL WORK	235000	50000	835000
		1406000	1563000	14816000
	INSURANCE AND UMBRELLA	7000	7000	76000
	BUILDING PERMIT	14000	15000	155000
	BONDS ON SUBCONTRACTORS	9000	14000	132000
	BOND ON PERINI	6000	6000	79000
				15258000
	ESCALATION 1986-1987	17000	55000	500000
				15758000
	OVERHEAD AND PROFIT	56000	62000	800000
				16558000
	CONTINGENCY	-	-	800000
	TOTAL			17358000
	COST TO FINISH TENANT AREA 39,000 ≠	-	-	700000
	COST TO FINISH COMMERCIAL AREA 18,000 ≠	-	-	420000
	GRAND TOTAL	1545000	1722000	18478000

TO: GEORGE TREMBLAY, EILENZWEIG, MOORE AND ASSOCIATES, I.

FROM: CHARLIE FISHER, PERINI CORPORATION

SUBJECT: JOHN HANCOCK PARKING GARAGE

DATE: 3.18.85

COPY: PETER RIZZUTO, FILE

FOR YOUR USE FIND A COPY OF OUR REVISED BUDGET ESTIMATE FOR THE ABOVE REFERENCED PROJECT. AS REQUESTED THE PORTIONS OF THE WORK RELATING TO THE TENANT/RETAIL AND AIRRIGHTS CONSTRUCTION AS TWO SEPARATE ITEMS BOTH OF WHICH ARE INCLUDED IN THE BASE AMOUNT.

I'M ALSO INCLUDING COPIES OF OUR REVISED MECHANICAL AND ELECTRICAL ESTIMATES FOR YOUR REVIEW.

PLEASE CALL WITH ANY QUESTIONS.

REGARDS.

PERINI CORPORATION
INTER-OFFICE MEMO

TO: [redacted] DATE: 18 March 1985

FROM: Lou Goodman COPY TO: Steve Smith

SUBJECT: Hancock "Air-rights" Garage
Revised Mechanical Budget

Attached is my revised mechanical budget for the above referenced Project. This revision incorporates various items as discussed with Mike Hicky of Crowly Engineers. If you have any questions, please contact me.

LG/pt

HANCOCK "AIR-RIGHTS" GARAGE
Mechanical Budget Revised
18 March 1985

HVAC: Base system will include the turnpike ventilation system. This system will consist of two (2) towers with two (2) vaneaxial inline supply air fans and two (2) vaneaxial inline exhaust air fans. Exterior louvers at the roof will intake/exhaust air.

Heating and ventilating of the elevator lobby, elevator machine room and egress stairs in garage is included and will be provided for by electric unit ventilators. Commercial/Retail and Tenant spaces will be provided with a base system providing chilled water and provisions for fresh air makeup (1/10 c.f.m./s.f.). One (1) 200 ton air-cooled chiller will provide chilled water to the space. The tenant or finish work will consist of air handling unit(s) (constant volume) with electric heating coils and distribution ductwork and outlets. Toilet exhaust(s) will be included in the base price.

Garage (Includes Turnpike Ventilation):	$ 811,000
Commercial, Tenant and Retail Base System:	336,000
Total	$1,147,000
Add To Finish Tenant Areas:	$ 240,000

NOTE: Turnpike ventilation price is $786,000 based on system described above. This system has been used in the past to obtain approval from the turnpike authority. If exhaust only is felt to be suitable, price for turnpike ventilation is $450,000. (Deduct $336,000 from Base Price).

PLUMBING: A complete plumbing system consisting of the following: Dual riser, sanitary and storm systems for garage utilizing floor drains,(10 per garage floor), Drains only to snow melters on roof discharging into storm system. Wash down system for garage levels with provisions for drain down. Gas piping only for the snow melters has been included (snow melters by others). Retail/Commercial and Tenant areas have been provided with public toilets and capped connection points will be provied for future connections. Electric hot water heaters will provide domestic hot water for these areas.

Garage:	$290,000
Retail/Commercial:	65,500
Tenant:	50,500
Total Price:	$406,000

Note: Excluded are: A. Snow Melting Equipment
B. Utility Relocations Above Turnpike

Fire Protection: A complete system of dry standpipes in stairwells and dry sprinklers in garage. Garage sprinkler system is per N.F.P.A No. 13 standards for ordinary hazards with alarms and siamese connections. Dry standpipe system is per N.F.P.A. No. 14 standards with 2-1/2" fire department valve connections. Garage systems will be dry-type systems with valved direct connections (controlled by fire department) to municipal supply. Retail/Commercial and Tenant areas will be provided with a combined standpipe/sprinkler system sized for 225 feet per head coverage.

Garage:	$359,000
Retail/Commercial:	38,000
Tenant:	31,000
TOTAL	$428,000

HANCOCK GARAGE
PRICE BREAKDOWN

1. Costs associated with Garage only

Plumbing	$290,000
HVAC	25,000
Fire Protection	359,000

2. Premium for "air-rights" construction

Plumbing	$ 18,000
HVAC	786,000
Fire Protection	0

3. Costs associated with retail/commercial/tenant spcaes (Base Price)

1. Plumbing	$116,000
2. HVAC	336,000
3. Fire Protection	69,000

PERINI

INTER-OFFICE MEMO

TO: Charlie Fisher DATE: 18 March 1985

FROM: Bob Senecal COPY TO: H.O. File

SUBJECT: Proposed John Hancock Garage
Boston, MA
Electrical Budget

Per telephone conversation this date with Crowley Associates, we submit the following Revised ELectrical Budget. This budget is based on the use of HPS fixtures in lieu of the specified fluorescent. We assume the use of 1-150 HPS lamp/fixture and these are on 20' centers. We have a total of 611 HPS lights.

We have provided a service to the rental space with provisions for a meter. We also have provided for connection to the systems in these areas.

All other items in our proposal of 8 March 19853 remain the same.

NEW BUDGET:

Parking Garage (& Bridge)	=	$550,000
Turnpike Airights Lighting	=	50,000
Rental Space	=	70,000
Tenant Space	=	165,000
TOTAL		$835,000
Alternate Finished Tenant Space ADD		$170,000

We had also included in our original proposal $100,000 for work in the Edison vault. We have been advised by the Engineer this date that all work in the vault is by Edison so we have deducted the same from our original bid.

For furnishing and installing fluorescent fixtures in garage ADD $125,000 to the above total.

We trust this is the information your required.

Bob mc

Bob/mc

Specification Description

Division 1-
General Conditions

Summary of the work:

1. The AIA General Conditions will govern except as modified by the special provision of the Contract.

   Two Components of the base contract:

   1. Base Building: Base building including parking area and its mechanical and support spaces and the shells of the tenant and commercial areas. All items listed in the outline specification are for the base building only unless otherwise stated.

   2. Tenant Areas: Cost to finish tenant areas including their mechanical and electrical requirements. [30,000 square foot space].

   3. Alternate: Cost to finish commercial areas including their mechanical and electrical requirements.

2. Massachusetts State Building codes and all pertinent regulations will apply.

ivision 2-
ite Work

Summary of the work:

1. Subsurface exploration.
2. Pile Foundations.
   a. Precast pre-stressed concrete piles 14" or 16" square for basement support.
   b. Steel H piles - Building Structure steel girders.
3. Site Drainage.
4. Site Utilities from the project to the in-street utilities, including all connections.
5. Landscaping, Paving and Site Improvements.
   Pavement and exterior steps: Exposed aggregate concrete slabs as manufactured by Hasting Pavement Company.
   Curbs: Replace and install new granite curbs.
   Seating: Wire mesh benches as manufactured by Kroy.
6. Earthwork.

ivision 3-
oncrete

Summary of the work:

1. Concrete foundations, slabs, foundation walls including formwork, waterstops, reinforcements and accessories.
2. Pre-cast concrete.

   Architectural: Architectural pre-cast concrete with coloring, acid etched, two different kinds of rustication and two different colors.

ision 4-
onry

Summary of the work:

1. CMU filled with grout used for all interior partitions and elevator walls.

Division 5-
Metals

Summary of the work:

1. Structural steel framing for floors in commercial areas and stairs.
2. All miscellaneous metals including lintels and angles required to support openings.
3. Stainless steel railings along entire garage perimeter on all floors. Painted metal railings at all stairs.
4. Grating over areaways for mechanical.
5. Metal Fabrications.
6. Metal floor mats at retail entrance.
7. Galvanized Metal Guard Railings at parking stall edge - (with 3 coats of paint).

Division 6-
Wood and Plastics

Summary of the work:

1. All rough carpentry required to complete the project.
2. All finish carpentry including shelving, trim, and plastic laminate counters and back splashes.
3. Wood blocking.

Division 7-
Thermal and Moisture Protection

Summary of the work:

1. Waterproofing and dampproofing of the walls.
2. Vapor barriers under all new concrete slabs.
3. Insulation Thermal: 5" rigid insulation on all roofs.

Division 7- Thermal and Moisture Protection (Cont)

4. Rubber and Membrane roofing: Single-ply loose laid E.P.D.M. traffic bearing membrane roofing including necessary base flashing and counter flashing for all roofs, including temporary protection.
5. Metal Cap flashing and fascia panels for the vertical faces on the roof sides of all parapets.
6. Sealants and caulking as required.
7. Acoustic separation between garage/commercial and retail areas.
8. Encase the columns in concrete and apply a sprayed-on fireproofing with a cement based finish to floor beams and girders (Turnpike Level). Encase the columns in concrete where exposed to the exterior and apply a sprayed-on fireproofing to columns, beams and girders. (First level within the enclosed building).
9. Thermal insulation on slab over turnpike.

Division 8- Doors and Windows

Summary of the work:

1. Painted steel fire label doors in welded frames in all fire stairs and as otherwise required to obtain necessary fire rating.
2. Custom detailed aluminum framed store-front system on all areas excluding garage.
3. Metal windows as manufactured by Kawneer..
4. Door hardware as manufactured by Schlage & Russwin.
5. Hold open door hardware tied back to central fire alarm system.
6. Glazing as manufactured by P.P.G..
7. Curtain walls.
8. Exterior Insulated Rolling Steel Doors for 3 loading docks. 8' x 10'.

Division 9-
Finishes

Summary of the work:

1. GWB on metal studs.
2. Floor finishes
   V.A.T.
   Carpet.
3. Ceiling finishes
   Suspended acoustic ceilings.
   GWB.
4. Paint tenant and stair area.
5. Allowances for finishes of commercial areas.
   -Floor finishes
   V.A.T.
   Carpet
   -Ceiling finishes
   Suspended acoustic ceilings
   GWB
   -Paint commercial areas.

Division 10-
Specialties

Summary of the work:

1. Louvers and vents.
2. Grilles.
3. Wall and Corner guards
4. Flagpoles.
5. Identifying devices.
6. Lockers.
7. Partitions.
8. Toilet and bath accessories.
9. Internal parking signage and parking striping.

Division 11-
Equipment

Summary of the work:

1. Parking Equipment.
   Two control areas with manned booth, card entrance device and traffic arms.
2. Loading Dock Equipment.
   Dock levelors, dock lights, dock seals and bumpers for three 8 foot openings.
   Wheel chocks for three loading docks.

Division 12-
Furnishings

Summary of the work:

Not Used.

Division 13-
Special Construction

Summary of the work:

Not used.

Division 14-
Conveying Systems

Summary of the work:

1. 2 Elevators (one elevator double side opening)
   Electric geared, passenger, 4000 lb capacity, 350 FPM, 7'-0 x 7'-0 platform.

Division 15-
Mechanical

Summary of the work:

Plumbing:

Domestic hot and cold water systems.
Electric water heaters and accessories.
Sanitary and storm drainage.
Bathroom accessories: 2 per floor in tenant.
1 per garage.
1 per separate retail ownership.
Complete gas piping system.
Floor drains, roof drains and cleanouts.

Plumbing and Fire Protection

1. Drainage system for all parking levels. (Either dual or single riser system).
2. Sanitary drainage in retail/commercial space.

3. Wash down system for garage per level. (Dry one or two risers with valves at each level to allow connection of a hose).
4. Standpipe - dry system with connection to the municipal water supply.
5. Tenant/Commercial spaces require sprinklers.
6. Garage requires sprinklers - dry pipe system.

Mechanical

1. Heating and ventilating in the elevator lobby at each level, the elevator machine room and the egress stairs.
2. Central heating and air conditioning system for the commercial and retail area. The system will include all head end equipment to tenant areas.
3. Snow melters fuel fired cylinders depressed in the rooftop slab. Waste water will be piped from the cylinders to the roof drainage system.

Division 16- Electrical

1. Electric vault by Boston Edison Co. Electric room containing switch gear and various other distribution equipment.
2. Tenant/Commercial spaces metered and distributed separately from the rest of the facility.
3. Diesel generator for emergency power system.
4. Surface mounted fluorescent fixtures (existing main garage) with lighting powered from panels on each level.
5. Selected fixtures and exit signs powered from the emergency power distribution system.
6. Lobbies - Low brightness fluorescent or incandescent downlights.
7. Fluorescent high out put lighting to match the existing turnpike lighting scheme.
8. Fire alarm system with remote annunciation, smoke detectors, heat detectors, flow switches, tamper switches and visual/audible alarms.

9. Provisions for a closed circuit television system to accommodate the Owner. Installed in lobbies, stairwells, and other vandal related areas.
10. Provisions for illuminated signage system for control of traffic flow as required.